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THE

MEDICAL NEWS.

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VOL. XXXIV.

PHILADELPHIA:
HENRY C. LEA.
1876.

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PHILADELPHIA:
COLLINS, PRINTER.

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THE MEDICAL NEWS AND LIBRARY.

VOL. XXXIV. JANUARY, 1876. No. 397.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on Surgical Diagnosis. By CHRISTOPHER HEATH, F.R.C.S., Holme Professor of Clinical Surgery in University College Hospital.

GENTLEMEN: Many surgical injuries and affections are so obvious that no great skill is required for their recognition; but, on the other hand, similar outward appearances may depend upon very different causes; and it is here that the skill in diagnosis of the surgeon gives him the advantage in prescribing appropriate treatment. Symptoms may be conveniently divided into "objective" and "subjective"; the former being those open to the observation of the surgeon, the latter those experienced only by the patient. It is to the objective symptoms of disease and injury that I propose to direct your attention to-day; for I do not mean, on this occasion, to bring a patient before you, but simply a living model with no special ailment, to illustrate some points in diagnosis.

It must be your great object to cultivate your eye, hand, and ear; and you cannot safely omit the use of any one of the three. Practically, one uses, as a rule, the ear first; because you are bound to hear something of the patient's own account of his ailment, in order to know to what part of his frame you are to direct your attention; though you must not put too much

Published monthly by HENRY C. LEA, Nos. 706 & 708 Sansom Street, Philadelphia, *for One Dollar a year; also, furnished* GRATUITOUSLY *to all subscribers of the "American Journal of the Medical Sciences," who remit the Annual Subscription, Five Dollars, in advance, in which case both periodicals are sent by mail free of postage.*

☞ *In no case is this periodical sent unless the subscription is paid in advance.*

trust in a patient's own account, and still less in his diagnosis of his own malady. Thus, pain referred to the knee frequently depends upon disease of the hip, and pain in the loins from supposed kidney-disease, upon stricture of the urethra. The eye will take in many of the leading features of a case at a glance, such as the general aspect of the patient, his mode of walking or standing, etc.; and, when the affected part is exposed to view, it will in many cases, if sufficiently practised, complete the diagnosis. Let me warn you, however, against "jumping to conclusions" too rapidly; for those who are foolish enough to pride themselves on rapidity in diagnosis not unfrequently make mistakes which a little more time would have enabled them to correct. You can no more afford to leave out steps when tracing the nature of a case by progressive induction, than you can venture to omit one or more tests when examining a complicated fluid in the chemical laboratory. Lastly comes the hand, which may require to be fitted with various instruments for special purposes; but which, in its simplicity, is the surgeon's most powerful ally if properly educated. The much-talked-of *tactus eruditus* is to be acquired by all who will take the trouble to practise their fingers in the manipulation of healthy and diseased subjects, and will at the same time use their mental powers. For, of course, no amount of examination of a patient will tell you what is the matter with him, unless you elaborate the facts thus ascertained in a mind which has been trained by previous study to comprehend the importance of the several symptoms; and this is the reason why, at first, beginners must be at a disadvantage, lacking the experience necessary for a clear appreciation of symptoms. You will find, however, that with a little help from the surgeon, you will soon begin to see the "why" and the "wherefore" of diagnosis and treatment; and let me beg of you not to be afraid of asking questions—so long, at least, as the questions are put for the purpose of increasing, and not of displaying, your own amount of information. One pitfall I must just allude to; and that is the tendency to over-elaboration of a diagnosis which besets some men, and seems to stick to them through life. They never can take the plain obvious facts of a case, and from them draw a conclusion; but must dig and delve so deeply that they sometimes get, so to speak, "out of their own depth," and never come up again so far as any utility to the patient in question is concerned. Superficial carelessness is bad; but too great profundity is not much better.

And now I bring before you a man with no special deformity or ailment, in order that I may be able to show you a few noteworthy points which you can readily appreciate at a little distance, and which will assist you in studying disease and injury in the wards. With his back towards us, you have the opportunity of examining a healthy spine; and you may notice that, while the spinous processes are readily visible in the dorsal region (and particularly when the arms are folded), they are not so visible in the lumbar, and still less so in the cervical, region, where they are covered by muscles and ligaments, the seventh, or *vertebra prominens*, being the only one really seen or felt. Here, in a healthy adult, we have the average anterior and posterior curves in the lumbar and dorsal regions; but you must remember that, in young children, the spine is nearly straight, while in disease we may have great exaggeration of either curve. Thus, in the back, we find *cyphosis*, or angular curvature, the result of caries of the vertebræ; while in the loins we have *lordosis*, an exaggeration of the healthy curve, and generally connected with old hip-disease. Of the latter, I now place an example before you; and, of the former, there is an instance in No. 1 Ward, in a man whose foot I removed last week.

The model is now standing at "attention," with his knees straight; consequently the two sides of his pelvis are perfectly even; and you see that a tape carried between corresponding points on the two sides is horizontal. Let us now make him "stand at ease," with the left knee bent and foot slightly advanced, and you see that at once the left side of the pelvis is lowered. But this is not all.

Corresponding with the obliquity of the pelvis, we have a lateral deviation of the spine to the left in the lumbar region; and if the man could sufficiently relax his muscles at the moment, we should have a curve in the opposite direction—to the right—in the dorsal region. By placing a book beneath the right heel, and thus increasing the obliquity of the pelvis, I exaggerate the lumbar curve; or, of course, by tilting the pelvis in the opposite direction, I could throw the spine over to the opposite side. Of course, the same thing holds good if the patient be seated instead of standing; for, by tilting his seat, we are able to produce a marked lumbar and a certain amount of dorsal curve at will. Fortunately, we have here to-day also a case of old hip-disease, in whom the obliquity of the pelvis is well marked, and the resulting twist of the spine better seen than in the healthy subject. You see, then, how important it is in any case of lateral curvature to ascertain whether it depends upon some obliquity of the pelvis (from atrophy of one leg or old hip-disease), or upon other causes; and you also see what effect upon an existing curve may be produced, as has been well pointed out by Mr. Barwell, by raising the side of the pelvis by means of a thickened sole or a sloping seat.

Turning, now, to the neck and shoulder, I pass my finger along the clavicle, which is subcutaneous, and shows its curves well enough in a thin muscular subject. The notch between the clavicles is important in connection with aneurisms of the great vessels of the neck; but the inner end of the bone is very rarely dislocated, except by extreme violence. The outer end of the clavicle is continuous with the acromion process, and I now run the chalk along them; but it may be dislocated (as we have lately seen), and then the flattened end of the bone is readily felt beneath the skin. If I make the man swing his arm round, you will be able to appreciate better than you perhaps have hitherto done the great range of motion in the sterno-clavicular articulation, which, in fact, admits of "circumduction," and has a most important relation to the movements of the arm.

There is no joint, I suppose, about which more mistakes are made than about the shoulder. An "obscure injury about the shoulder" has often damaged a surgeon's reputation, because he has not sufficiently studied the anatomy of the part to be quite sure of his diagnosis and treatment. The chalk-line I have already made marks the bony arch formed by the clavicle and acromion; but you will notice that the head of the humerus projects beyond this in front, and gives the roundness to the healthy shoulder. There is a hollow immediately behind the head of the humerus and below the prominent acromion; and another in front, to the inner side of the head, in which the coracoid process can be more or less distinctly felt, according to the muscularity of the subject. In the healthy subject, there is just room to lay the finger between the coracoid process and the head of the bone. When the head of the humerus is *dislocated*, the roundness of the shoulder is lost, and the acromion stands out prominently beneath the skin, with a depression below it; while the head can be felt in some unnatural position, and out of its proper relation to the coracoid process. The direction of the whole limb is altered too; so that the patient cannot place his hand on the opposite shoulder with the elbow touching the chest-wall, as he can in health. In a *fracture* of the neck of the humerus, the roundness of the shoulder is not lost; but there is a depression below the head, which does not move when the arm is rotated, unless, indeed, the fracture be impacted. The two accidents may be combined; but this is a rare complication.

When I turn the model with his back to you, and make him raise his arm, you will appreciate how important the movements of the scapula are. The deltoid alone can only raise the arm to a right angle with the trunk; and the subsequent elevation of the limb depends upon a rotation of the scapula on the ribs, so that the angle comes forward to the margin of the axilla. The scapula is held in its place by the muscles passing from the spine to its base, and by the serratus magnus. If these be paralyzed, the scapula falls forward, and the power of the arm is greatly lost.

Let us pass on to the elbow. With the forearm bent, you see at once the prominent olecranon process of the ulna. When this is broken off by falls on the elbow, the fragment is drawn up by the triceps, and an interval can be felt between it and the bone, which, however, is rapidly filled up by the effusion immediately following any injury to the elbow-joint. A much more common result of a fall on the elbow, however, is an injury to the bursa which lies between the subcutaneous triangle of the olecranon and the skin. In health, this bursa cannot be recognized, except in individuals whose occupation has produced enlargement of it—*e. g.*, miners or sweeps; for though it is technically called the "student's bursa," I must confess to have never seen an enlargement of it due to long poring over medical treatises. When the bursa is inflamed, it causes a swelling over the olecranon, which is evidently quite superficial, and does not mask the general outline of the joint, as would be the case were the effusion in the articulation. You may remember that, last week, a patient with suppuration of this bursa was treated by an early and free incision in Ward 1.

The condyles of the humerus are readily felt in this thin arm; and you will notice that the internal is the more prominent, and stands out beneath the skin. Immediately behind it is the groove in which the ulnar nerve lies, as you may ascertain for yourselves by "twanging" it; and then comes the olecranon, with only just space for the nerve between the bones. This close relation of these two prominent points of bone is of great service in the diagnosis of dislocation of the forearm; for, so long as they lie close together, the deformity cannot be caused by a dislocation of the ulna. The outer condyle is more rounded; and immediately below it is the head of the radius, which can be felt rotating when the forearm is pronated or supinated. It is not often dislocated, for it is firmly held by ligaments; but it is sometimes thrown forward, and then prevents complete flexion of the forearm, by coming against the front of the lower end of the humerus.

At the wrist, you may notice that the end of the radius is lower down than that of the ulna, and that the styloid processes of both bones are to be felt. Dislocation of the carpus from the radius is rare; but separation of the lower epiphysis of the radius is by no means uncommon in young persons, and is sometimes mistaken for dislocation. The triangular fibro-cartilage which binds the radius and ulna together at the wrist, sometimes becomes displaced in children who are dragged forcibly by the hand, and then the little patient cannot supinate the forearm and hand; but if you hold the hand firmly, and then supinate, you hear a slight click, and all is well. It is well always to bear in mind that, in supination, the bones of the forearm are parallel, and in pronation are across one another; so that supination is the posture in which fractured bones of the forearm should be set, although it is convenient, when the bones are firmly held by splints, to turn the thumb upwards—*i. e.*, to place the hand midway between pronation and supination.

In the hand, I need only point out that the superficial palmar arch does not correspond precisely to any one of the lines in the skin of the palm; but its convexity reaches generally to the middle one of the three, while the deep arch is much nearer the wrist. The bifurcation of the digital arteries is between the heads of the metacarpal bones, and about midway between the line to which I have referred and the web of the fingers; so that incisions should always be made in the line of the fingers, and not between them. As you may have, early in your career, to amputate a crushed finger, I would remind you, also, that the prominence of each knuckle is formed by the proximal bone of the articulation; and that the joint through which the knife must pass is below this in every case.

Descending to the groin, you see that the fold of the groin corresponds to Poupart's ligament; and an inguinal hernia is above, while a femoral hernia is below, this line—at least at first. Of course, a large inguinal hernia will descend into the scrotum, and a large femoral hernia may turn up over Poupart's ligament, and closely simulate the inguinal variety. But you ought to have little difficulty in distinguishing them if you will invaginate a piece of scrotum (or labium in the female) on the forefinger, as you see me doing, so as to carry the finger into the external abdominal ring. This will enable you to settle at once whether the protrusion has taken place through the inguinal canal or not. Let me also remind you always to ascertain the presence of two testicles in the scrotum: for an undescended testis may closely resemble a hernia, especially if inflamed.

The pelvis is so firmly bound together that a dislocation of one of the innominate bones can only be produced by extreme violence; but disease of the sacroliac joint is by no means uncommon, though often overlooked; and one leading symptom is lameness, which is erroneously referred to the hip-joint. But if I make the man before us stand on one leg, you will see at once how the whole weight of the body falls upon the corresponding sacro-iliac joint while he is throwing the other leg forward; and it is this which gives rise to the pain, and prevents the walking of a sufferer from sacro-iliac disease. Taking this man, who has a healthy pelvis, I may compress his two innominate bones without giving any pain; but a woman who has recently had a severe labour, and has, perhaps, incipient sacro-iliac mischief, will cry out at any such rough treatment, though the steady support of a good pelvic belt would give her great comfort, and restore her powers of locomotion.

The hip-joint in health is freely moveable in all directions, as you see, and independently of the pelvis; but, the moment the joint is inflamed, the muscles instinctively contract, and fix the joint to some extent; and then, when the limb is moved, it carries the pelvis with it. This man's back is naturally more curved than a child's; but even in him, if I make him lie flat on the table, you will see that the thigh can be fully extended without tilting upon the pelvis, and so increasing the curve of the lumbar spine. In a child, whose back is naturally flat on the table, the effect of early hip-disease is readily seen (as I have frequently demonstrated to many of you); for the attempt to bring the thigh down, at once elevates the pelvis, and causes that curvature of the lumbar spine which, in old hip-disease, becomes permanent.

The prominence of the great trochanter will vary in different individuals, according to the muscularity of the buttock and the length of the neck of the femur; and it is important, therefore, to compare the two sides in every case of suspected disease or injury. The head of the femur can be indistinctly felt on deep pressure, either in front of or behind the trochanter; and, in health, the two move together; for if the trochanter can be freely moved by rotating the femur without affecting the head of the bone, it is clear that the neck must be broken. The length of the neck will very much affect the power of rotating the limb; thus, if the neck be shortened, either by an impacted fracture or the absorption of old age, the arc in which the upper part of the thigh moves will be found to be much smaller than in health. When I stretch a tape from the anterior superior spine of the ilium to the tuberosity of the ischium, you see that, in health, it touches the top of the greater trochanter; now, if the bone were dislocated or the neck broken, the trochanter would be above or below this line.

When the knee is extended, you see the patella forming a prominence in front of the femur; but, when the joint is flexed, it sinks into the hollow between the condyles. With the leg fully extended and the muscles relaxed, there is, as you can prove in your own limbs, considerable lateral movement of the patella possible in the healthy joint; and the mistake is sometimes made of attributing this mobility to the presence of synovial effusion. When fluid is poured into the knee-joint, however, not only does the patella float so as to be freely movable in any position of the limb, but the synovial pouches on each side of and above the patella are distended, and give the characteristic roundness to the knee. If one kneel down on a flat surface, and particularly if the body be bent forward, as in scrubbing a floor, the patella and the bursa between it and the skin are exposed to considerable pressure; and hence the chronic enlargement of the bursa, termed "housemaid's knee," which causes a globular swelling in front of the joint, altogether different from that of effusion. Kneelers on hassocks or foot-boards do not run any risk of the housemaid's fate; for the pressure in their case comes on the tubercle of the tibia, and the bursa between it and the *ligamentum patellæ* would suffer if the pressure were sufficiently prolonged—but I never met with such a case. In falling with the knee bent, the patella reaches the ground first, and receives the force of the impact, which may simply bruise or cut open the bursa; or, if very severe, may "star" the patella itself. The transverse fracture of the bone is produced through the effort of the patient to save himself, by which the great extensor muscles catch the bone across the condyles, and either break it or rupture the ligament; then the upper fragment is drawn up in front of the femur, and a space is left in which the condyles can be felt, as in a patient recently in the wards.

With the knee flexed, the rounded outlines of the condyles can be readily felt resting on the top of the tibia; and a little distance below the outer condyle can be seen the head of the fibula—which bone, let me remind you, does not enter into the formation of the knee-joint. The existence of the semilunar fibro-cartilages between the femur and tibia is hardly appreciable in health; but their existence must not be forgotten, as occasionally, in violent wrenches of the knee, one of them becomes displaced, giving rise to extreme pain and inability to use the joint, which are most satisfactorily treated (as also are dislocations of the patella) by a little of that judicious violence for which "bone-setters" have a reputation.

At the ankle, we see at once the prominences of the two malleoli, between which the astragalus fits closely when the foot is at right angles to the leg, less so when the foot is pointed; so that, in this position, some amount of lateral movement of the foot is possible. The fibula is altogether posterior to the tibia, and its malleolus is longer than the internal. The lower third of the fibula is subcutaneous, and its fracture (Pott's fracture) is therefore readily recognized. The tendons of the various muscles surround the ankle-joint; but the only one to which I need call your attention is the *tendo Achillis* at the back, in which, when ruptured, the division is readily both felt and seen. When I flex the knee and point the toes, you can see how completely the muscles of the calf are relaxed; and this is an important point in the treatment of a divided tendon, or of a dislocation of the foot, or oblique fracture of the tibia.

The prominences of the foot are chiefly important as guides to the amputations; thus the tuberosity of the scaphoid on the inner side marks the transverse tarsal joint, or site of Chopart's amputation; whilst the base of the first metatarsal on the inner or prominent fifth metatarsal bone on the outer side, marks the position of Hey's amputation. The metatarso-phalangeal joint of the great toe is not unfrequently diseased through gout or the pressure of boots which have developed a bunion; and other toes are not unfrequently deformed from the same cause. The only surgical point with regard to the toes that I need mention is that the base of the first phalanx is more expanded and more deeply placed than young operators are apt to imagine.

I have thus run briefly through the more salient points on the living body which it is important for you to recognize thoroughly in health before attempting to treat disease; and, in future lectures, I shall have to direct your attention to matters regarding which the knowledge acquired to-day will be of service in enabling you to recognize deviations from the standard of health.—*British Med. Journal*, Oct. 23, 1875.

HOSPITAL NOTES AND GLEANINGS.

Cases of Syphilitic Headache and Neuralgia cured by Calomel in small and repeated doses.—In syphilitic headache, which is always so painful and often produces obstinate insomnia, as well as in neuralgia of venereal origin, Trousseau used to prescribe calomel in very small and repeated doses; for instance, one centigramme (or about one-sixth of a grain) a day, divided into ten doses, administered at one hour's interval, so that the patient would take one milligramme only (or about one-sixtieth of a grain) every hour.

Dr. **Peter**, of Hôpital St. Antoine, following Trousseau's example, uses this drug in similar cases as well as in doubtful ones, in which it has the excellent effect of speedily determining the nature of the disease.

Dr. Peter often quotes the instance of a young girl who entered Trousseau's wards for a severe facial neuralgia. For more than fifteen nights the patient had not slept, on account of the intensity of the nocturnal pains. The illustrious "clinician" noticed on the girl's temple the presence of a very small tumour, painful on pressure, and which he thought must be of syphilitic origin. Possibly the tumour rested on some filament of the temporo-facial nerve and produced irritation of it. Anyhow, he resolved to prescribe calomel immediately in doses as above described. The very same night the young woman slept four hours. The next night was attended by perfect sleep, and the pain disappeared entirely on the third day, though the size of the tumour had not much decreased.

Amongst other cases treated in like manner by Dr. Peter, the following are worthy of being noted.

A woman, aged twenty-three, was admitted on October 9th, 1874, for various syphilitic manifestations, large *plats muqueux* of the vulva and anus, a general papulo-squamous syphilitic eruption, etc. For these lesions the patient had already been put under a course of protoiodide of mercury before entering the hospital. But her chief complaint was a most violent nocturnal headache, beginning at 4 P. M. and lasting till 4 A. M., and which completely deprived her of sleep. Moreover, she had fever, and complained of intense pain along the nerves of the left arm and in the brachial plexus of the same side. On October 10th, instead of continuing the use of the protoiodide of mercury. as had been prescribed in town, Dr. Peter ordered one centigramme of calomel in ten doses, each to be given at an hour's interval. The next day (the 11th) the patient's report was that she had suffered less during the night. The headache commenced only at 6 P. M., and left her at 2 A. M., after which time she was able to sleep. The pain in the arm had been the same. In the night of Oct. 11th–12th the headache almost completely disappeared. It commenced very slightly at 7 P. M., and was so slight that the patient was able to sleep almost the whole night. The fever had also ceased. The calomel was then discontinued, nevertheless the night of October 12th–13th was excellent: The headache went off entirely, and the pain in the arm had diminished considerably. From that moment the classic treatment of syphilis, viz., the protoiodide of mercury, was resumed in order to combat the other syphilitic manifestations.

In another woman, who entered Dr. Peter's wards on the 29th of February this year, the syphilitic headache had been going on for nearly a month. It had been general at first, but after a fortnight became confined to the left side of the head. As usual, the pain was much more intense at night than in the day, and prevented sleep. Together with this headache, the patient complained of an intense pain in the right side, and indeed it was for this latter ailment that the patient had sought admittance into the hospital. Dr. Peter stated that it was seated in the situation of the chondro-costal articulation of the left side, which was slightly tumefied. Moreover, the patient had syphilitic roseola. On Feb. 22d ten milligrammes of calomel were prescribed, but through some mistake only two were given. The patient suffered much from the head during the night. On the 23d ten doses were administered. The headache disappeared almost completely, and the patient slept for ten hours. On the 24th, the stitch in the side, which had been already less painful two days before, when only two doses were taken, diminished to such an extent that it required rather strong pressure to produce any pain. On the 25th the ten doses were again forgotten, and the patient did not sleep so well as on the previous night. The sleep was, however, better than at first, and the headache less intense than before the calomel was used. The ten doses were given this day, and the patient slept from 8 P. M. till midnight. From that hour she only got sleep in snatches, but without having any pain in the head; the pain in the side had by this time completely disappeared. On the 27th the general treatment of syphilis with a syrup containing iodide of mercury and iodide of potassium was commenced. The headache was only felt two hours in the nights of the 27th and 28th, and afterwards entirely ceased.

The remarkable features of this mode of treatment, says Dr. Peter, are—first, the rapidity of its action; next, the fact that it is successful in cases where the really specific treatment of syphilis fails. It constitutes, in a manner, *the* medicine of nocturnal syphilitic pain; but cannot replace the other plan of treatment for other syphilitic manifestations. Its use is indicated whenever nocturnal pain is very intense and interferes with sleep. It diminishes pain and its consequences the very first night it is given, and generally extinguishes suffering by the second night. The treatment may be carried on for three days, and that period of time is almost always enough for its success. If, however, the desired result has not been obtained, it ought then to be suspended for one or two days, so as to prevent salivation; and it can be resumed afterwards for two days successively, in which case Dr. Peter has never seen it fail.

Dr. Peter thinks that this plan of treatment is thus efficacious because, first, the drug is mercury; and secondly, the absorption of these very small doses is exceedingly rapid, and the repetition of the action takes place every hour. Whatever the explanation may be, adds Dr. Peter, it is to Trousseau that he is indebted for the idea of using calomel in this manner, and to him belongs all the credit.—*Lancet*, Nov. 6, 1875.

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Treatment of Lead Colic in the Paris Hospitals.—"In going through the wards of La Charité Hospital lately, I was struck," writes the correspondent of the *Medical Times and Gazette* (Dec. 4, 1875) "with the number of patients I saw there suffering from lead or painter's colic, for in one ward alone there were no less than six cases to be seen. I at first could not account for the presence of so large a number in this hospital, but, remembering that it had the reputation of more successful cures of lead-poisoning than any other hospital, I made inquiries as to the particular mode of treatment adopted, and was furnished with the following formulæ, which I reproduce for the benefit of your readers, as I have no doubt it will interest them to know what is meant by 'traitement de La Charité,' when applied to cases of lead colic. On the first day a purgative enema composed of infusion of senna, sulphate of soda, and powder of jalap is administered. This is followed by a purgative mixture called 'eau de casse' (cassia), and is composed as follows: Decoction of tamarind sixty grammes, water 1000 grammes, tartar emetic fifteen centigrammes—which the patient is to swallow in the course of the day; besides which he is to have a jug of decoction of guaiacum. In the evening an enema of walnut oil 125 grammes, ordinary claret 300 grammes. This is followed by a 'bol calmant,' composed of theriaca four grammes, opium five centigrammes. On the second day the patient is supplied with a drink composed of tartar emetic twenty-five centigrammes, water 500 grammes; this is facetiously designated 'l'eau bénite' (holy water). Besides this, he is treated with the same 'tisane' (decoction of guaiacum), the same enema, and the same bolus as on the first day. On the third day the patient drinks in the early morning two tumblers of a tisane composed of equal parts of an infusion of senna and decoction of guaiacum, and in the course of the twenty-four hours he is to take the same tisane, enema, and bolus as on the preceding days. On the fourth day a purgative draught of senna and jalap, followed by the tisane of guaiacum during the day, and the bolus at bedtime. Fifth day: Two tumblers of laxative tisane ordered on the third day, followed by the tisane of guaiacum, enema, and bolus as before. Sixth day: Idem.

Seventh day: The two tisanes, the same enema and bolus as previously. For the first three days the patient is condemned to '*diète absolue*,' which means total abstinence from food of any kind! This treatment, it must be confessed, must either kill or cure the patient, and strange to say, though purely empirical, it is considered the classical treatment for lead colic in the Paris hospitals, and is said to have been instituted by the monks that were attached to the Charité Hospital many years ago. Fortunately for the patients, lead colic is, generally speaking, not a fatal disease."

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Choreic Movements in an old Case of Hemiplegia.—As much interest attaches to "choreic" movements sometimes observed in the paralyzed limbs of a hemiplegic patient, a description of these movements exhibited in the following case admitted into the Birmingham General Hospital, under the care of Dr. Russell (*British Med. Journal*, Dec. 4, 1875), will not be without interest. They occurred in a young man, aged about 25, who had been partially paralyzed in his right side from his second year of age. He ascribed the paralysis to a fright, but could give no further particulars respecting it. The movements in question affected those muscles of the right side which are the seat of the paralysis in hemiplegia. They consisted of rapid energetic clonic contraction of all the muscles more or less simultaneously.

On some occasions, with considerable muscular action, the movements of the affected limb were of the most limited description; the antagonist muscles all contracting at once counteracted the effect produced by one another. Dr. Russell placed his hand on the limb, and felt all its muscles in active intermittent contraction, the contraction travelling down the limb from the shoulder, and yet the position of the scapula was little affected; the arm remained by the side, only the shoulder being slightly rotated inwards or outwards, in consequence of slight overaction of one or other of the scapular muscles. The fingers were more active, being chiefly extended and spread out, the former posture resulting from the flexors of the fingers losing their purchase, owing to the permanently bent position of the wrist. Of course, a marked exception was presented by the mouth, which was under no opposing influence from the opposite muscles; the muscles acting upon the right angle of the lips drew the angle forcibly outwards, and these muscles were aided by the violent action of the platysma on the same side, so that great distortion of the lower part of the face was the consequence. But at other times, especially when the movements were most violent, the exact opposition of antagonists was not maintained, and considerable movement resulted, though apparently wanting much of the complexity and range observed in chorea.

These movements differed from those of chorea in another and more characteristic particular; though the patient could not restrain the muscular action which has been described, he yet retained the power of employing the various groups of muscles in any manner he pleased. He could walk well, without deviating from a direct course, though occasionally, if he had a violent "snatch," he ran against persons in the street; he could grasp my hand or any other object without any trouble; but, owing to the permanent predominance of the flexors, he was quite unable to release his hold until aided artificially; yet the fingers simply closed on the object, and manifested none of the fidgetiness and intermitting grasp characteristic of chorea. Of course, he was quite incapable of performing the more delicate movements of the hand. The muscles affected were notably those of the right angle of the mouth, the right platysma, to a remarkable degree; the scapular muscles and those operating upon the shoulder; and the muscles of the upper and lower extremities. The muscles of the upper suffered much more than those of the lower extremity. The bilaterally acting muscles were spared almost, if not completely; those of the upper part of the face entirely, and also the muscles of the tongue. The chin could be raised during a violent paroxysm, and the sterno-mastoids were quiet. The abdominal and lumbar muscles sometimes were slightly in action; but it seemed rather for the purpose of steadying the body. The wrist and the knee were maintained permanently in a semiflexed position, owing to the predominating action of the flexor muscles; but they could be extended artificially with facility. The movements occurred in paroxysms; but one often saw the patient almost still. They were quiet during sleep, but were remarkably under the influence of excitement. A dream would bring them on, and rouse the patient from sleep, or any mental excitement by day. During the day he was quiet whilst he was reading, or whilst his mind was fully engaged; but sometimes a paroxysm of movement would last all the day.

The limbs were of the same length with those of the opposite side. The girth of the right wrist equalled that of the left; but the girth around the heads of the metacarpal bones on the right was half an inch below that on the left side. The fingers were rather slender. The muscles of the right arm were smaller than those of the left, occasioning a lessened girth of one inch in the upper arm and of half an inch in the forearm. Sensation was normal. The fundus oculi was healthy, excepting for a posterior staphyloma. The sounds of the heart were natural.

The man was well developed, fully intelligent, and had good health. The movements, it should be added, had been present so long as he could remember, but not with so much severity as for the last few years.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

Carbolic Acid as used for the purposes of Disinfection.—The following resolutions were adopted at a meeting of physicians recently held in New Orleans:—

1st. Carbolic acid, as used for purposes of "disinfection," by the Board of Health in New Orleans during the years 1867, 1870, 1871, 1872, 1873, 1874, and 1875, has failed to arrest smallpox, scarlet fever, and yellow fever.

2d. Carbolic acid, as used for purposes of "disinfection," by the Board of Health in New Orleans, has in several instances proved injurious to the inhabitants of the "*disinfected*" districts.

3d. The facts observed in New Orleans, during the practice of carbolic acid "disinfection" upon a larger scale than ever before in the history of sanitary science, sustain the view held by high authorities, that it is impossible to disinfect the atmosphere of an entire city, or even of a circumscribed area, as of two or more squares.

Cases of yellow fever have occurred in succession, at long intervals, in houses and localities which have been most thoroughly subjected to the so-called "carbolic acid disinfection." Instances have been observed where unacclimated individuals, returning from the country before cold weather had put an end to the disease, and entering those districts of the city in which carbolic acid had been most lavishly employed as a "disinfectant," have been attacked by yellow fever.

4th. Yellow fever has followed its usual course, increasing up to a certain period, and then declining with the fall of temperature and ceasing with the appearance of frost. No connection has been traced between the decline and cessation of the disease and the amount of carbolic acid used for purposes of "disinfection."—*New Orleans Med. and Surg. Journ.*, Nov. 1875.

Prolonged Gestation.—Dr. Frank Wells records (*Boston Med. and Surg. Journ.*, Dec. 2, 1875) a case of this in which delivery took place 304 days from the date of sexual congress. The birth, which was a tedious one, necessitating the application of the forceps, was chiefly characterized by the almost entire absence of liquor amnii, only sufficient being discharged to make upon the sheet a stain of the size of a silver dollar. The child, which weighed eight and one-half pounds, looked as though it had been in a measure macerated in the amniotic fluid, its skin being loose and wrinkled, and the epidermis peeling off in strips. At this date (November, 1875), the child (a boy) is healthy and vigorous, and weighs eighteen and one-half pounds.

—

Delegates to the International Medical Congress, Philadelphia, 1876.—The Virginia State Medical Society has appointed the following delegates: L. S. Joynes, G. W. Semple, T. S. Michaels, J. S. D. Cullen, J. L. Dorsett, R. S. Payne, J. G. Cabell, J. S. Davis, L. B. Edwards, M. P. Christian. Alternates: Benj. Blackford, J. F. Harrison, O. B. Jenks, Geo. Ross, J. A. Johnson, W. S. Morris, Allan Payne, J. St. P. Gibson, John G. Skelton, Geo. W. West.—*Va. Med. Monthly*, Nov. 1875.

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The American Public Health Association.—This Association, the object of which is extremely disinterested and laudable, held its third annual meeting in Baltimore, on 9th of November and the four succeeding days. An unusually large number of papers on practical hygiene were read.

The following officers were elected: *President*, E. M. Snow, M.D., of Providence, R. I.; *First Vice-President*, John H. Rauch, M.D., of Chicago, Ills.; *Second Vice-President*, Prof. F. A. Walker, LL.D., of Yale College; *Treasurer*, Foster Jenkins, of Yonkers, N. Y. Executive Committee, Hon. A. W. Boardman, of Boston; J. S. Billings, M.D., U. S. A.; J. M. Woodworth, M.D., U. S. A.; Hon. L. H. Steiner, M.D., of Maryland; Ezra Hunt, M.D., New Jersey; and Jackson S. Schultz, Esq., New York.

Dr. Elisha Harris continues as Secretary.

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Virginia Medical Society.—At the annual meeting of this Society held at Richmond in October, the following officers were elected for the ensuing year. President, Dr. F. D. Cunningham, of Richmond; 1st Vice-President, Dr. Thomas B. Ward, Norfolk; 2d Vice-President, Dr. Benj. Blackford, Lynchburg; 3d Vice-President, Dr. Wm. F. Barr, Abingdon; 4th Vice-President, Dr. S. W. Carmichael, Fredericksburg; 5th Vice-President, Dr. R. W. Nelson, Charlottsville; 6th Vice-President, Dr. E. A. Drewry, Drewrysville; Recording Secretary, Dr. Landon B. Edwards, Richmond; Corresponding Secretary, Dr. Christopher Tompkins, Richmond; Treasurer, Dr. Landon B. Edwards, Richmond.—*Va. Med. Monthly*, Nov. 1875.

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The Indiana, Illinois, and Kentuckg Tri-State Medical Association.—Dr. A. PATTON writes us that a convention of medical societies of the above-named States was held in Vincennes, Indiana, on the 26th and 27th of October last, at which a number of valuable papers were read, and it was resolved to form a society under the title given at the head of this notice.

The following officers were elected for the next year:—

President, Dr. J. W. Thompson, of Paducah, Ky. *Vice-Presidents*, Dr. J. B. Armstrong, Ind.; W. A. Smith, Ill.; J. H. Litcher. *Secretaries*, Drs. Burton and Beard of Ind. *Treasurer*, Dr. A. Patton, Ind.

A constitution was adopted and also the Code of Ethics of the American Medical Association.

The next meeting will be held at Vincennes on the last Tuesday in October, 1876.

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The Medical Profession of New York on Hospital Management.—In response to a call signed by the leading medical men of New York, a largely attended mass meeting of the profession of that city was held on the 30th of November, to elicit an expression of opinion regarding the relations which should exist between the boards of management of hospitals and their medical staff; the consideration of the subject having grown out of a difficulty which has for some time existed between the managers and the staff of the New York Presbyterian Hospital. After some remarks a committee was appointed to draft resolutions expressive of the sense of the meeting. It subsequently made the following report, which, as it relates to a principle in which the honour of the entire profession is involved, and deals with it so justly, we publish in full.

Whereas, certain facts have been laid before this meeting embodied in the following statements, viz., that,

At the Annual Meeting of the Board of Managers of the Presbyterian Hospital, for the year 1875, four members of the medical staff were not reappointed, and were thus virtually dismissed; that no charges were preferred against those gentlemen; that no causes were alleged to have existed which assumed fault on their part, nor was a hearing afforded them, although very respectfully asked for; that this is the more remarkable when we take into account the facts that the measures against the medical gentlemen not reappointed were carried by a single vote; that respectful protests from the medical staff and from a very large number of medical men were made to the board of managers, but not regarded; that the vacancies thus made were filled without consultation with the medical staff; that several members of the medical staff subsequently resigned; that a committee of the board of managers was appointed to confer with the gentlemen who had resigned; that the board of managers contemptuously refused even to accept the report made by this committee, although it was of a conciliatory character, and thus gave additional evidence of the feeling that was entertained towards the medical profession.

That all the members of the committee except one, who was absent in Europe, instantly resigned. That other members of the board of managers, impressed by the injustice of these proceedings, also resigned.

In view of these facts, and of the principle that the good order and usefulness of hospitals must necessarily depend upon the maintenance of mutual respect and harmony between their boards of managers and their medical staffs, therefore be it resolved,

I. That the medical profession of New York cannot look with indifference upon these proceedings, but feel that such a precedent should not be established without protest on their part.

II. *Resolved*, That they believe that the four gentlemen dropped from the medical staff have not been treated with common justice.

III. *Resolved*, That no medical man should place himself in a position from which he may be dismissed without charges preferred or hearing allowed.

IV. *Resolved*, That we heartily approve of the action of those members of the medical staff who have resigned their positions, and thus refused to countenance an injustice done to fellow-members of their profession.

V. *Resolved*, That while we fully appreciate the great and wise beneficence of the founders and supporters of the Presbyterian Hospital in their efforts to secure a place of relief for the suffering poor, we deplore the treatment of the members of our profession, which has so much impaired the usefulness of what promised to be a great charity.

VI. *Resolved*, That in consideration of the primary importance of the relations of the medical profession to all hospitals, it is the sense of this meeting that similar occasions of disagreement between the boards of directors of hospitals and their medical staffs, as well as grave faults in the management or in the construction of hospitals, can be avoided only by an adequate representation of the medical profession in the membership of the boards of direction.

The West Virginia Medical Student.—This is the title of a new monthly medical journal published at Wheeling, W. Va., of which Dr. James E. Reeves is editor and proprietor. The editor is well known by his various contributions to medical literature, and his first number now on our table presents a very neat appearance. It contains four original articles, of which it will be observed that one only is by a resident of West Virginia. We welcome our new contemporary, and with pleasure place it on our exchange list.

Obituary Record.—Died suddenly, Dec. 3d, of pulmonary apoplexy, aged 67, Dr. James H. Armsby, Professor of Anatomy and Clinical Surgery in the Albany Medical College, N. Y. Dr. A. was a successful teacher, and his death will be especially deplored as a great loss by the College of which he was the founder and a successful teacher.

—— in Boston, Dec. 9th, Charles Mifflin, M.D. Dr. M. was born in Philadelphia, and was a descendant of a family of Revolutionary fame, but for many years he has been a resident of Boston.

—— at Danville, Ky., Dec. 8th, of pulmonary phthisis, JOHN D. JACKSON, M.D. Dr. J. was one of the most eminent and learned physicians of Kentucky, and enjoyed in an unusual degree the confidence and respect of his contemporaries.

FOREIGN INTELLIGENCE.

Death from Chloroform.—A very few words seem to be necessary *à propos* of the painful calamity of the sudden death of Mrs. Childers, from the inhalation of chloroform self administered. They are the more necessary, that two deaths, equally sudden and sad, were recorded last week from the use of chloral—solidified chloroform—self-prescribed by its victims. Medical science, in bringing these divine narcoties to the relief of human suffering, has conferred a boon which, inestimable as it must be considered, is liable to great abuse. It should never be forgotten that of the three most potent anæsthetics now known, ether, nitrous oxide, and chloroform, the last is by far the most dangerous. It gives death suddenly, mysteriously, and often when least expected on *à priori* grounds. The medical practitioner who administers chloroform, either by inhalation or in the solid form as chloral, incurs a great responsibility, of which he is conscious and of which he is able to measure the extent; the unskilled person who indulges in these narcotics for the relief of pain, or as a nervous sedative, on his own responsibility, takes an unmeasurable risk, of which the fatal consequences are but too often shown publicly by sudden death; while the more subtle mischiefs which they produce, though less liable to occasion startling public catastrophes, are not the less widely observed by medical practitioners. The unauthorized use by unskilled persons of dangerous anæsthetics is a practice fraught with the utmost peril.—*Brit. Med. Journal*, Dec. 4, 1875.

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Ether and Chloroform.—Ether is preferred to chloroform as an anæsthetic in the Laboratory of Florence, because a very extensive experience has convinced Dr. SCHIFF that etherization carried to the last grade of insensibility never becomes dangerous to life as long as the movements of respiration are maintained. But even if the inhalation of ether be still further continued until the respiratory movements cease, or, in other words, the appearance of death is complete, death does not actually follow if only, at the moment when the thoracic walls are paralyzed, the inhalation is interrupted in order to begin suddenly a kind of artificial respiration by interrupted compression of the thoracic walls themselves. By this measure, the air impregnated with ether passes out of the lungs at every compression, and atmospheric air enters every time that the compression is relaxed, and the air so entering takes up more ether, which is again expelled at the subsequent compression. Thus the quantity of ether in the blood is diminished to such a degree as to be no longer sufficient to embarrass the action of the nervous centre of respiration, and thus breathing begins anew. Chloroform has been often popularly preferred to ether because it acts more rapidly, and its application is more agreeable to the patient who dislikes the smell of ether. But according to Dr. Schiff (whose views in this respect seem to be gaining ground in the present day), chloroform has a much more extensively paralyzing action than ether, and has, moreover—at least in man and other mammiferous animals, —a special influence on the nerves of the heart. Thus it happens, that, when chloroform is carried to such a degree as to weaken considerably the respiratory movements, it is sometimes impossible to restore them, in consequence of the weakness of the heart's action. Dr. Schiff goes so far as to state emphatically that a medical man is responsible for every case of death caused by the use of ether—by which he means that a careful watching of the respiration during the employment of this agent may always prevent death; while the effects of chloroform depend partly on individual predisposition, which medical science cannot always detect.—*Med. Times and Gaz.*, Dec. 4, 1875.

The Inoculability of Tuberculosis.—The adversaries of the doctrine of the inoculation of tuberculosis increase and multiply. At the recent International Medical Congress at Brussels, Professor Crocq strongly attacked several points in M. Villemin's doctrine, and, at the meeting of the Academy of Medicine on November 16th, Dr. Metzgner continued the onslaught. Some months since, M. Metzgner read a memoir before the Academy, in which he set forth the result of his first experiments on the non-inoculability of tubercle. The second memoir, to which we now refer, is the affirmative and extended complement of the first. Dr. Metzgner has chiefly devoted his memoir to the demonstration of these two points. 1. The inoculation of tuberculous matter produces a change which differs entirely from tubercle. 2. The inoculated animals which withstand these changes, and which are allowed to live for six months after, do not at the end of that time show any local or general lesion. Dr. Metzgner bases his demonstrations on one hundred and thirty experiments performed on rabbits. A committee of seven members of the Academy has been appointed to examine and report on M. Metzgner's memoirs, and to decide the important question of the inoculability and specificity of tuberculosis.—*British Med. Journ.*, Dec. 4, 1875.

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Tubercle of the Pancreas.—Dr. **Barlow** exhibited to the Pathological Society of London (*Med. Times and Gazette,* Nov. 27, 1875) a specimen of tubercle of the pancreas which is said to be a very rare condition. A child of twenty-three months died a quarter of an hour after admission into the Great Ormond Street Hospital. It had suffered for months from "scrofula," and been acutely ill for a fortnight. General acute tuberculosis was found post-mortem, with caseous change in several glands, including the mesenteric. The exterior of the pancreas appeared to be normal, but white nodules were discovered in the head of the gland, six in number, similar to those familiar in the kidney. Microscopically a small-celled growth was discovered between and in the lobules; the gland-elements were granular in the neighbourhood.

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Diagnostic Value of the Bruit de Galop in Interstitial Nephritis.—M. **Potain** recently brought before the *Société Médicale des Hôpitaux* the importance of the *bruit de galop*, which is occasionally met with in the auscultation of the heart, as a means of diagnosis of interstitial nephritis. This bruit is presystolic, occupying a portion of the long pause, and having its maximum towards the apex. According to M. Potain, it is met with especially in the subjects of interstitial nephritis, and disappears at the same time as the renal disease. In discussing the mechanism of the bruit, M. Potain at once rejects the explanation based upon the non-simultaneous contraction of the two sides of the heart, and endeavours to prove that it is due to exaggerated distension of the hypertrophied auricle.—*Dublin Medical Journ.*, Nov. 1875, from *Gaz. Hebdom.*, Sept. 3.

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Feeding by Subcutaneous Injections.—A method of forcible alimentation, which possesses at least the merit of novelty, has recently been put in practice by Dr. J. **Krueg**, who narrates his experience in the *Wiener Med. Wochenschrift.* It consists in the injection of aliments into the subcutaneous tissue by means of a hypodermic syringe. Dr. Krueg recalls the fact that it has been shown by MM. Menzel and Pereo that nutritious matter may be absorbed in this way; a quantity of fatty liquid, from one to eight drachms, having been taken up in forty hours, and that solutions of sugar, milk, and yelk of egg act in the same way. Peptones have also been shown to be thus absorbed by Stricker and Oser. Dr. Krueg tried the method in a case of insanity with refusal of food, in which the patient having been nourished for twenty-seven months by means of the stomach-pump, and the introduction of the tube becoming difficult from his violence, at one time it could only be introduced once in ten days. Dr. Krueg, therefore, injected about half an ounce and then one ounce of oil daily beneath the skin, dividing this quantity between from two to five different points of injection, the operation being done gradually, and lasting about an hour. The injection was not painful, and the swelling disappeared by the next day. Beaten-up egg was not so successful, producing an abscess. For nine days at a time the patient was entirely dependent on this process for nourishment, which was subsequently repeated several times. We need scarcely say that this method of feeding is one not likely to be of much use; and, indeed, it seems to have been required in this case only because the old and barbarous method of feeding by the stomach-pump was employed, instead of the more simple and expeditious way of feeding by the nose. As a means of inducing unwilling patients to take food, the punctures required may have as much value as any other mode of torture; and, indeed, some temporary result of the kind seems to have been gained in the case narrated.—*Lancet*, Nov. 20, 1875.

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On the Rational Treatment of Common Tapeworm.—At a late meeting of the Medical Society of London, Dr. Brunton read a paper on this subject (*Lancet*, December 4, 1875). After stating the varieties met with in this country, and mentioning the anomalous symptoms to which they give rise (their very anomaly, he remarked, affording a clue to the diagnosis), he stated that the chief points to be observed in the treatment were; a preliminary starvation of twenty-four hours, and the administration of a combination of kameela and male fern—namely, two drachms of kameela to be rubbed up with a little gum and water till an emulsion is formed, and then two drachms of oil of male fern to be added, and the whole triturated in a mortar, with a gradual addition of water till a three-ounce mixture is formed, of which half is to be given at bedtime, and the remainder four hours later. This he had never known to fail. He insisted on the quality of the drugs being good, and spoke of the after-treatment by tonics.

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Quinetum —A preparation of the whole alkaloids separated from East India red bark has been used for some time in the Indian hospitals, as well as in private practice, with great success. The concurrent testimony of medical men in our Indian possessions is to the effect that quinine is not so greatly superior to the whole alkaloids as to make it worth while to separate the sulphate in its pure state. Mr. Thomas Whiffen of the Quinine Works, Battersea, now offers to the profession a similar preparation, which he calls quinetum. It is in the form of a fine granular non-adherent powder of a pale buff colour. The proportions of the various alkaloids present will of necessity vary with the sample of bark used; but, we think, not so much as to be of moment therapeutically. Sulphate of quinetum is a white crystalline body with a faint pink tinge, greatly resembling sulphate of quinine; and we are informed that the preparation can be supplied to the profession at about one-half of the cost of quinine.—*Brit. Med. Journ.*, Nov. 27, 1875.

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Sugar in Healthy Urine.—Dr. Pavy demonstrated to the Royal Medical and Chirurgical Society (*Med. Times and Gaz.*, Dec. 4, 1875) the existence of sugar in healthy urine. This was, he believed, much more commonly to be found than was supposed. It might be obtained in various ways, especially by acetate of lead. Thus procured, sugar might, as he showed, be demonstrated in healthy urine by all the ordinary tests—Moore's or the liquor potassæ test, Böttger's or the bismuth test, Fehling's modification of the copper test, and, finally, the crucial fermentation test.

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Obituary Record.—Died suddenly, Nov. 26th, in the 67th year of his age, in the Library of the Academy of Medicine, Joachem-Albin Cardoza Giraldes. M G. was Member of the Academy of Medicine and of the Society of Surgery, an Agrégè of the Faculty of Medicine, Surgeon to the Children's Hospital, Officer of the Legion of Honour, etc etc. etc. He was master of several living languages, and possessed a vast amount of bibliographical knowledge.

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VOL. XXXIV. FEBRUARY, 1876. No. 398.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on the Physical Examination of the Urethra in Cases of Stricture. By Sir HENRY THOMPSON, Emeritus Prof. Clin. Surgery in University College Hospital.

GENTLEMEN: To-day our subject is to be, stricture of the urethra. It naturally comes next in order; but I take it next also because it is generally supposed to be one of the most frequently occurring affections of the urinary organs. Not that it is so; on the contrary, it is certainly not present in a great majority of those who fancy they are the subjects of stricture. Many persons suffering from slight functional disturbance will come to consult you for "stricture." They do so because they find the stream a little twisted or forked, whilst nevertheless the urethra may be absolutely free from any organic change.

[After discussing the pathology and describing the symptoms of stricture, the lecturer proceeded to consider the mode of examining the urethra in order to ascertain the presence of stricture.]

For this purpose there are two separate modes to be followed, as there are two different objects to be attained, each of which is quite distinct from the other:—

There is, first, a simple examination of the urethra, to be used only for the purpose of verifying the presence or absence

Published monthly by HENRY C. LEA, Nos. 706 & 708 Sansom Street, Philadelphia, *for One Dollar a year; also furnished* GRATUITOUSLY *to all subscribers of the "American Journal of the Medical Sciences," who remit the Annual Subscription, Five Dollars, in advance, in which case both periodicals are sent by mail free of postage.*

☞ *In no case is this periodical sent unless the subscription is paid in advance.*

of any material deviation from the natural dilatability of the urethra;

And there is, secondly, a more minute and exact examination, in order to determine the precise condition of the urethra when it is already known, or there is reason to believe, that long-standing and perhaps considerable obstruction exists.

Now I need hardly say that the first examination is one which is applicable to the vast majority of cases; and that the second is necessary only in a few and exceptional cases. A very simple examination suffices to determine the question which so frequently comes before us—"Do certain not very considerable derangements of the urinary function in any particular patient arise from organic obstruction, and therefore require instrumental interference; or are they due to some other condition, for which instruments are not merely useless but would probably be injurious?"

Now, in reference to this subject, I find a tendency at the present day to employ instruments too readily, and instruments also which are liable to injure the urethra. This overreadiness to interfere with the urethra existed at the beginning of the present century. The mechanical school, as I shall take the liberty to term those who devise and largely employ more or less complex mechanical means for exploration, and for applying dilatation, cutting, or caustic to the unfortunate urethra, was then in the ascendant. I think I could amuse you for hours with the history of the surgical knick-knacks which have been produced by it. But our time is too valuable, and I will content myself with one illustration only of surgical practice in this country at the era I speak of. [Sir Henry Thompson then read some curious reported cases from the work of Sir E. Home, illustrating the extraordinary abuse of the bougie at that time.]

Following the period spoken of came the experience of mischief as its result, and a certain healthy reaction appears to have taken place. The practice of Sir Benjamin Brodie, who was subsequently so high an authority during his long career, was marked by caution and prudence, and his admirable teaching insured a similar practice among others for some time. I may be allowed to say, perhaps, that my feeble voice has also been raised against the abuse of instruments from the first day that I ventured to pen a line on the subject, some two or three and twenty years ago. And now I perceive a growing disposition to return to the state of things I have referred to. I note an increased tendency to discover stricture, and especially to undertake a considerable amount of operative treatment for strictures of the slightest kind, and sometimes where, in my opinion, they do not exist. There seems now to be a school which has determined for itself a very high standard of patency in what we hear called the "urethral tube," and which is accordingly said to have, or, if it hasn't, that it ought to have, a calibre of so many parts, and very large parts, of an inch, or millimetres, as the case may be. Instruments of astounding magnitude are produced, and if one of them cannot be drawn, with an ease which contents the operator, through the whole of the urethra, the unlucky patient is pronounced to be the subject of stricture; and probably he is submitted to an operation by no means devoid of risk.

Now I don't know that this fashion has as yet been adopted here, but I do know that it exists elsewhere, and I raise my earnest protest against it. I feel it a matter of duty on my part to say what I think about treatment which I am perfectly certain neither you nor I would for a moment entertain the propriety of in our own proper persons; that is, if we entertain a due respect for that delicate passage which an intelligent acquaintance with it will insure. Let us for a moment revert to the natural form which the urethra takes when it is distended by some fluid material, and observe how unlike it is to the coarse simile of a tube of known uniform diameter. We have already seen that its natural capability for dilatation varies greatly at different points: being much limited at the junction of the membranous and spongy portions; limited again, but less so, and somewhat irregularly, in the anterior part; and again at or near the meatus. Let me assure you also that there are few structures more delicate than the male urethra. Formed of an internal membrane of great tenuity, surrounded by elastic and muscular fibres, interpenetrated everywhere with ducts, fine bloodvessels, and nerves; the whole surrounded in front of the prostate with one of the most elaborate of vascular structures, known as erectile tissue; add to this the sensitiveness to pain of the internal membrane, equalling the conjunctiva in that quality, as any one may learn for himself by passing the softest instrument he can find. Lastly, and more important still, it possesses another form of sensibility, of a much graver kind, which even the last-named membrane does not possess: I mean a strong tendency to arouse, in the entire nervous system, a state of excitement, evidenced by the striking phenomena of rigors and subsequent fever and prostration, when slight mechanical injury has been done to any portion of it. Now let this picture of the urethra as it is, never be absent from your mind's eye when you put an instrument into it, and both you and your patients will profit. When, therefore, a young man consults you for certain troubles relative to which you desire to learn whether urethral obstruction be a cause or not, do not be tempted for an instant to adopt so unnecessary a course (to say the least) as the introduction of very large instruments, or instruments with huge bulbs at the end of them. But simply take a flexible English gum-elastic bougie, well curved towards the point, with a blunt end (since a tapering point, of course, will not mark distinctly the site of stricture), not larger, as a rule, than No. 10 or 11 of our scale, and pass it very gently and slowly into the bladder. If it goes easily—above all, if it is withdrawn without being held, and slides out with perfect facility, take my word for it he has no stricture, and, *quoad* obstruction, wants no use of instruments whatever.

I dare say I shall be told by some one, that there may be a urethra through which No. 11 can be made to pass, yet which is, nevertheless, the subject of some degree of stricture which it is necessary to treat. Well, I do not deny the existence of that exceptional case. But such an example is very rare, and, further, no man who has the slightest delicacy of tactile sense in his fingers can fail to observe the difference between a No. 11 bougie sliding out with facility, and one which is grasped somewhat as it is withdrawn. This difference is always manifest in the two cases, and is, indeed, very notable. But supposing that the No. 11 stops at any point, and you have assured yourself that it is not one of the natural obstructions to the passage of an instrument through the urethra, of which I shall have to speak hereafter, you will try a smaller instrument of the same kind until you have arrived at one which does pass through and inwards into the bladder. But you may also test your observation by passing a soft tapering French bougie —11 or 12 English size—and if it is a *natural* obstacle which at first checked your blunt-pointed bougie, the former instrument will probably slip through without trouble.

Now, with reference to these bulbous-pointed flexible explorers, nothing is more easy, especially with an unpractised hand, than to deceive one's self with respect to the existence of stricture by means of them. If not drawn out accurately in the axis of the passage, you may feel a check, and readily find what you believe to be a stricture in the most healthy urethra. And that is precisely what I am so anxious to guard you against; for, in the hands of designing persons, these instruments may be turned to most unworthy purpose. For men outside the ranks of our profession, or holding a questionable position on its outskirts, these instruments are the very thing. That is an additional reason why we should be careful not to encourage their unnecessary use. I have used small bulbous instruments in metal for the diagnosis of narrow and confirmed stricture, on which it is desirable to operate, for twenty years, but for slight stricture never; and I have protested against their use on the two grounds already named: first, that for such the instrument inflicts needless pain; secondly, that it is liable to deceive a young operator not too adroit or familiar with its use.

But now, in the second case—not that of the young man, but of the patient who has a confirmed stricture—the diagnosis has probably to be conducted with more attention to detail. I proceed as follows, making what may be called a "survey" of the passage. I commence by passing the soft, blunt-ended English gum-elastic bougie as far as it will go; and when this stops, as it may do within an inch or less of the orifice, I make a note of the distance, and next find what will pass with tolerable ease through the obstruction met with. Very likely a No. 4 or 5 (similar instrument to the preceding) will do so, and it may then be carried further to seek another check, which is not unfrequently met with at about five inches from the orifice. Through this, after a trial or two, a very small gum catheter—say No. 1 or 2—may probably be passed into the bladder, drawing off some urine, and so assuring you of its position. I know then the patient has, at all events, a narrowing near the orifice and another at the distance named. I may verify this at once with a bulbous instrument if I choose; but as long as the anterior narrowing exists, it is as well to postpone more minute research until it is divided, as considerable narrowing at that part always requires to be. Such a one, indeed, is never advantageously treated by dilatation. This being done, the No. 11 blunt-ended bougie is passed, and we learn whether any contraction exists in the interval existing between it and the spot originally marked at five inches. If there is one, the stopping of the bougie will indicate its situation. But if the bougie passes easily to the point just named, the canal is sufficiently open, and we have arrived at what, in ninety-nine cases out of a hundred, is the only remaining stricture; for it is rare indeed, where a narrow stricture exists at that distance from the meatus, that any other will be found beyond. This has next to be dealt with, and, as we are speaking now of old and confirmed cases, there is little doubt that the best treatment will be internal urethrotomy. How to accomplish that most perfectly will be discussed in my lecture on that subject.

A word or two about the bulbous exploring instrument. It should, in my opinion, be of polished metal mounted on a slender metal rod or shaft. No other material slides so easily and smoothly through the urethra; and the necessity for it is, after all, not great, so that to employ one which produces much irritation, passes roughly, or distends unnecessarily, is to pay too high a price for the small amount of information it may convey. I am free to say that, although I used the metal bulbous instruments in the earlier part of my career, I can now, with more experience, attain all that is necessary without them. It is said that they enable you to ascertain the length of a stricture. In reference to this, let me tell you, first, that considerable narrowing almost never affects the urethra for any great distance. The passage is often partially implicated for half an inch behind and half an inch before the maximum point of narrowing—an important practical point in relation to operation; but the very narrow spot, which is what the exploring bulb indicates, is almost invariably short, within a quarter of an inch in extent. Secondly, you must take into consideration the fact that the mobility of the mucous lining of the urethra will deceive you if you are not aware of it. A very little pressure in front, on entering the stricture, or from behind, in withdrawing the exploring bulb, if it comes rather tightly through, changes the situation of the contracted portion considerably in relation to its distance from the external meatus.

I repeat, then, if you have to deal with a recent stricture, such a one as you naturally intend to treat by dilatation, the introduction of a large bulbous explorer is wholly useless, only produces unnecessary pain, and tends to excite inflammation.

But in view of any internal incisions for a confirmed or obstinate case, the important thing is simply to know where the narrowed points of the urethra are, and then it is not difficult to apply your cutting instrument properly to them.

But, before proceeding further, I wish to show you the proper mode of passing an instrument through the healthy urethra into the bladder, so as to avoid error arising from certain sources of difficulty which are *naturally* found there, and are often mistaken for stricture. Were the urethra a mere tube of uniform diameter, these would not exist. We shall observe in the particulars of its unlikeness to a simple tube, that such natural obstacles do exist, and have to be avoided.—*Lancet*, Dec. 11, 1875.

HOSPITAL NOTES AND GLEANINGS.

Treatment of Diseases of the Joints by Sulphuric Acid.—The treatment of diseases of the joints—especially of pulpy degeneration of the synovial membrane of joints—by the application of sulphuric acid to the diseased tissues has of late been tried by a few of the surgeons of some of our metropolitan hospitals. Though present experience is far too limited to allow of any definite conclusions being drawn as to the precise value of the remedy, or as to the exact place it should take in the treatment of joint cases, it may interest our readers to know what that experience amounts to, so far as we have been able to ascertain it.

It is now more than five years and a half ago since Mr. Pollock, in an interesting and instructive paper,[1] first directed the attention of the profession to the beneficial effects produced by sulphuric acid in the treatment of caries and necrosis. Mr. Pollock there states that he was led to try the acid as a solvent of diseased bone by having under his care a very aggravated case of syphilitic necrosis of the skull, in which, from the conditions, he was averse to any instrumental interference for the removal of the diseased portions, but in which it was clear that a very long period must elapse before exfoliation could take place if nature was unassisted by the surgeon. Subsequently, in 1865 and following years, he employed it in other cases of syphilitic necrosis of the bones of the skull, syphilitic necrosis of the tibia, and necrosis of the tibia after fracture, also for the destruction of carious surfaces in cavities of bones, and of patches on the surface of deep-seated (*e.g.*, the pelvic) bones.

The mode in which the acid is employed is twofold—either to touch the diseased bone with a glass brush or rod dipped in the strong acid; or to use a mixture of acid and water in equal parts, or in the proportion of one part of acid to two, three, or six parts of water, and either syringe it into the cavity of the bone, or place some lint, soaked in the lotion, upon the surface of the necrosed portion.

In no one of a large number of cases treated in this way at St. George's Hospital and in private practice had any evil consequences been known to follow the application of the acid to diseased bone of any part of the body, nor had the remedy been found a painful one; and when the acid has been used diluted it has not caused uneasiness to, or irritation of, the soft tissues. The antiseptic qualities of the acid favour its use, for, by altering the character of the foul discharges which so often accompany diseased bone, it puts a stop to all disagreeable smell. Hence it is a valuable agent in necrosis of the jaw, because it modifies the fetor which affects the breath of patients so afflicted.

While inclining to the opinion that the early application of sulphuric acid rather tends to check the spread of caries and necrosis, Mr. Pollock remarks: "The real merits of the treatment lie in the limitation of the action of the acid to the diseased bone, in the perfect safety of the application, and in the fact that it produces no irritation of the soft parts."

Since the publication of that paper the experience of the acid at St. George's has been a good deal extended, and it has been, and still is, very freely and fully applied by Mr. Pollock in all cases of caries, and in necrosis where operation by instruments is not considered desirable —as in necrosis of the skull. The method of its application has continued to be by means of lint soaked in the solution, or the fluid has been introduced by means of a glass tube or bottle.

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[1] Lancet, May 28, 1870.

The excellent results following from the application of the acid to carious bone-surfaces have been so obvious to those who have had many opportunities of witnessing them, that Mr. Warrington Haward, in 1871, was led to try its effects upon the carious articular ends of the bones, and the suppurating synovial membrane of the knee-joint, in a child under his care in the Branch Hospital for Sick Children at Highgate. As this case is fully reported in vol. vi. of the Clinical Society's *Transactions*, it is only necessary to add here that the constitutional disturbance was scarcely, if at all, increased by the operation; the pain and amount of discharge rapidly diminished, and the patient's health quickly improved. At the end of five months the child was going about with a firmly anchylosed joint. The success in this instance encouraged a repetition of the treatment in others of a similar nature, and during the last four years Mr. Haward has treated as many as ten cases of diseased joints by the local application of the acid. Mr. Pollock has employed it for strumous affections of the ankle- and wrist-joints, complicated or not with caries, and he has also used it for strumous disease of the knee-joint since Mr. Haward's first case. At St. George's, Mr. Holmes and Mr. Rouse have also tried it on the knee-joint.

The plan adopted is to lay open the joint freely, and clear it out by passing strips of dry lint through it, so as to get rid of the coating of lymph and pus; then the joint is filled with lint soaked in a solution of sulphuric acid (one part of strong acid to two parts of water). By this means the pulpy synovial tissue is destroyed, and so also are the cartilage and the carious layer (if existing) on the articular surfaces of the bones. As a rule, the local application is followed in a few days by a slough of the surfaces, and parchment-like fragments come away through the openings into the joint. Both Mr. Pollock and Mr. Haward consider that when a joint is suppurating the amount of pus is at once lessened by the local application, while it is seldom that any serious constitutional or local disturbance is produced by it. In fact, the acid converts an unhealthy, pus-secreting surface very rapidly into a healthy, granulating one, and in a very short time it appears to relieve constitutional irritation.

The advantages of the treatment, when successful, over excision are considerable: in the first place, it is a less formidable operation; secondly, it does not tend to shorten the limb as excision necessarily does; and thirdly, it allows of anchylosis in a slightly flexed position—a point upon which Mr. Pollock lays considerable stress. Mr. Callaway demonstrated years ago, in his own person, the inconvenience of anchylosis of the knee in the perfectly straight position. He was in the habit of showing that he could go upstairs only with great difficulty with his perfectly straight limb, and he believed that a slight amount of flexion would have been much better. Of the experience afforded by Mr. Callaway's case advantage has been taken by Mr. Cooper Forster and other of the surgeons of Guy's Hospital, who endeavour to obtain anchylosis of the knee in a position of slight flexion. When the treatment is unsuccessful, it in no way prevents excision from being afterwards performed.

The cases which seem most suitable to be thus treated are those in which the disease has had its origin in chronic synovitis, and gone on to ulceration of the cartilages, with perhaps superficial caries of the bones; whereas, the cases which are ill adapted are those in which the bone is very extensively diseased—*i.e.*, diseased beyond the articular extremities, and at a distance beyond which the acid cannot reach.

But although the majority of cases which have hitherto been subjected to the treatment seem to have done well, it cannot be asserted that all have. For instance, two cases at St. George's have turned out badly. One was under Mr. Holmes, in reference to which he writes—in a foot-note in his new work on "Surgery, its Principles and Practice": "I have lately had a case which proved fatal under this treatment. The child's parents having refused amputation, he sank from traumatic fever." Then, again, a child under Mr. Durham in Guy's Hospital was only saved by amputation. In the face, however, of an unsuccessful case, Mr. Holmes, though of course regarding the subject as still *sub judice*, speaks favourably, if guardedly, of the treatment, for he says (*op. cit.*, p. 432): "The treatment of carious joints by the application of strong sulphuric acid may, however, save many joints which would otherwise have been excised, and thus preserve the length and future growth of the limb, and at less risk to life."

While, then, the treatment of caries and necrosis by sulphuric acid may be admitted to have obtained, and to deserve, a recognized position, the use of the acid in the treatment of diseased joints is, as yet, in a state of probation. But, allowing for the accidents which may follow this as well as any other operation, it seems that the remedy, when properly applied (and repeated if necessary), is likely to prove a valuable substitute for excision, and possibly, in some cases, for amputation.—*Med. Times and Gaz.*, Dec. 11, 1875.

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Ophthalmic Cases at Moorfields Ophthalmic Hospital. Saemisch's Operation for Hypopyon Ulcer.—Several cases have lately come under notice in which Saemisch's proposal of cutting across the centre of the cornea in cases of serpiginous ulcer with hypopyon has been carried out, and in most the success has been exceedingly good; in some, however, the treatment has proved troublesome, and it has been necessary to keep the wound open by the repeated use of the spatula for long periods. Before the publication of Saemisch's paper, Mr. Hutchinson was, he stated, in the habit of doing an iridectomy downwards, and he was by no means sure that he did not still prefer that method. The two plans had the same object in view—to diminish the tension on the inflamed cornea, and at the same time to evacuate the hypopyon. In many cases after an iridectomy the patient's pain is at once and permanently relieved; the hypopyon never re-forms, and the ulcer steadily heals afterwards. As there is generally a central opacity resulting from the ulcer, the iridectomy method of treatment has the additional advantage of securing beforehand an artificial pupil. Mr. Hutchinson referred to Mr. Teale's able report on Saemisch's operation in a recent number of the Ophthalmic Reports, and quoted Mr. Teale's eulogy to the effect that it was a proposal second only in practical value to Graefe's operation for glaucoma. He was almost prepared to endorse this estimate if it were allowed to include iridectomy also. He wished, however, to insist strongly that neither of the two rival operations ought to be resorted to until after an efficient trial of the hot-fomentation plan. In a large majority of cases, corneal ulcers with hypopyon, if seen in an early stage, will do perfectly well if the patient be put to bed and the eye fomented constantly with a hot belladonna solution; but it must be almost literally constant, and as hot as the patient can possible bear it. Anything short of this in these dangerous cases is usually only waste of time.

Treatment of Onyx with Hypopyon.—Onyx with hypopyon is a much less common condition than the serpiginous ulcer. By chance two interesting examples of it are at present attending. In each the onyx was central, and in neither at the time the treatment was begun was there any ulceration of the surface. In each of them the treatment ultimately adopted was an incision through the centre of the onyx into the anterior chamber. In the first the hypopyon repeatedly relapsed, and the onyx re-formed as soon as the edges of the corneal incision adhered. It was necessary to use the spatula every morning for nearly three weeks. A fairly satisfactory cure was at length obtained. The second case is still under treatment. Mr. Hutchinson stated, in respect to these cases, that they were the only ones in which he had employed the incision for onyx, and that in neither of them had the result been so definitely good as to tempt him in the future to forego a patient trial of the fomentation plan before resorting to operation.

Retinitis Hemorrhagica as a consequence of Gout.—An interesting case in confirmation of the opinion that retinal hemorrhages are particularly prone to occur in the subjects of gout came under notice the other day. The patient, an elderly man, came on account of cataract in one eye, but, in taking his history, it was discovered that he had suffered severely from gout. Ophthalmoscopic examination of the non-cataractous eye, which he considered to be quite sound, revealed the presence of two flame-shaped patches of extravasated blood near to a large retinal vein and artery. Mr. Hutchinson remarked that he had long held that the cases of typical retinitis hemorrhagica occurred almost solely in the subjects of gout. This case was not one which could be definitely placed in that category, since the hemorrhages were not numerous, and there was little or no evidence of inflammation of the retina. Still, however, their presence was of interest in reference to the opinion that there was a special tendency to retinal hemorrhage in gouty patients.—*Lancet*, Jan. 1, 1876.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

Immobility of the Lower Jaw.—Dr. W. F. **Westmoreland** has published (*Atlanta Medical and Surgical Journal*, Jan. 1876) some remarks on this condition, with the relation of several cases upon which he has operated, and gives a figure of an elevator which he has had constructed and employed for separating the jaws. He states "that in some of our standard works on surgery this affection is entirely ignored, by others barely mentioned, and in *no work does it receive the attention* which its frequency, its distressing character when complete, and the difficulties attending its treatment demand."

It is somewhat remarkable that he had overlooked the almost exhaustive remarks on this affection by Prof. Gross in his, we had supposed well-known, System of Surgery (vol. ii. pp. 480–2, fifth edition), and the two cases related by the late Prof. Mott (*American Journ. Medical Sciences* for Nov. 1829, pp. 102–4), who figures an instrument which he employed to separate the jaws, which is a modification of one figured by Scultetus more than 200 years since (*Armamentarium Chirurg.*), and subsequently reproduced by Heister in his celebrated work (*Institutions of Surgery*, Pl. II., Plate XX. fig. 102). It is also figured by Prof. Gross, who likewise figures another instrument which he considers as superior to that of Scultetus for separating the jaws and breaking up morbid adhesions.

Inebriate Asylums.—At the meeting of the Association of Medical Superintendents of Insane Asylums the following resolutions, which are entitled to the respectful consideration of our legislators, were adopted:—

"*Resolved*, That, in the opinion of the Association of Medical Superintendents of American Institutions for the Insane, it is the duty of each of the United States, and of each of the Provinces of the Dominion, to establish and maintain a State or public institution for the custody and treatment of inebriates, on substantially the same footing, in respect to organization and support, as that upon which the generality of State and Provincial institutions for the insane are organized and supported.

"*Resolved*, That as, in the opinion of this Association, any system of management of institutions for inebriates under which the duration of the residence of their inmates and the character of the treatment to which they are subjected is voluntary on their part, must in most cases prove entirely futile, if not worse than useless; there should be in every State and Province such positive constitutional provisions and statutory enactments as will in every case of presumed inebriety secure a careful inquisition into the question of drunkenness and fitness for the restraint and treatment of an institution for inebriates, and such a manner and length of restraint as will render total abstinence from alcoholic or other hurtful stimulants during such treatment absolutely certain, and present the best prospects of cure or reform of which each case is susceptible.

"*Resolved*, Further, that the treatment, in institutions for the insane, of dipsomaniacs, or persons whose only obvious mental disorder is the excessive use of alcoholic or other stimulants and the immediate effects of such excess, is exceedingly prejudicial to the welfare of those inmates for whose benefit such institutions are established and maintained, and should be discontinued just as soon as other separate provision can be made for the inebriates."—*Am. Journ. of Insanity*, Jan. 1876.

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Triplets.—Dr. J. B. ROBERTSON reports (*Pacific Med. and Surg. Journ.*, Jan. 1876) a case of this which occurred in the practice of Dr. Daniel Ream, near Yreka, Cal. The mother was twice married, had nine children by her first husband, two of them being twins, and five by the second. All three children were females, and together weighed 18 pounds.

"A point worthy of notice is the presentations, all being of the head, the vertex of each child presenting. Another noteworthy point has relation to the placentas, which I had the opportunity of examining. There were two placentas, the larger having one umbilical cord, which the doctor says was attached to the first child. The smaller had two cords attached. The two placentas were connected by narrow, irregularly shaped placental lobes, together with lamellated albuminous tissue. The placental blood-vessels could also be distinctly observed running from one placenta to the other. There were three separate membranes or bags of water, each of which required to be ruptured.

"Mrs. L. felt considerably exhausted after labour, but did well, and was soon able to attend to household duties. She had only the usual amount of flooding, which I believe is exceptional; as it is stated by most obstetrical writers that 'hemorrhage is always to be suspected in plural births.' The after-pains lasted twenty hours, and were quite severe at first.

"The three little girls are living, and seem to be healthy children."

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Medical Society of the District of Columbia.—At the annual meeting, held Jan. 3, the following officers were elected: President, N. S. Lincoln; vice presidents, F. A. Ashford and R. Reyburn; corresponding secretary, G. L. Magruder; recording secretary, C. H. A. Klineschmidt; treasurer, C. W. Franzoni; librarian, A. Patze; board of examiners, A. F. A. King, D. R. Hagner, Wm. H. Triplett, J. T. Young, and C. E. Hagner: board of censors, J. W. H. Lovejoy, A. Y. P. Garnett, and J. Eliot; delegate to International Medical Congress, Philadelphia, to be held in September, Samuel C. Busey.

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The Chicago Journal of Nervous and Mental Disease.—The editors of this excellent Journal, Drs. J. S. Jewell and H. M. Bannister, announce that it is to undergo certain changes in its management. Its title is to be changed to *The Journal of Nervous and Mental Disease;* it is to be hereafter published simultaneously in New York and Chicago, and the editorial co-operation has been secured of Dr. Wm. A. Hammond of New York, Dr. S. Weir Mitchell of Philadelphia, and Dr. E. H. Clarke of Boston.

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The Louisville Medical News.—This new candidate for professional favour is edited by Dr. R. O. COWLING and W. H. GALT, and is to be published weekly in Louisville, Ky. "This journal undertakes to defend what it considers the right, and to expose *shams,*" the editors state in their announcement. In such an undertaking they are not likely ever to find a dearth of subjects for comment or to have to go far to seek them. We with pleasure welcome it to our exchange list.

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The American Journal of Microscopy and Popular Science.—We have received the first two numbers of this monthly Journal published by the "Handicraft Publication Co.," 37 Park Row, New York, at the low price of fifty cents a year. These numbers contain articles which are likely to interest and instruct the general reader.

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The Physician's Diary for 1876.—This publication, issued at the office of the Journal of Materia Medica, contains a visiting list, diary, and daily memoranda, obstetric and vaccination records, etc. etc.

Physician's combined Call-Book and Tablet.—This furnishes a useful means of keeping a record of professional visits, and has been prepared by Dr. Ralph Walsh of Washington, D. C. It contains a calendar, a list of doses of medicines, and a few useful formulæ, and is of a convenient size for carrying in the pocket.

OBITUARY RECORD.—Died, at Mount Holly, N. J., Dec. 29, in the 72d year of his age, BENJAMIN H. STRATTON, M.D.

—— at Boston, Jan. 9, aged 74, Dr. SAMUEL G. HOWE, founder of the Institution for the Blind, and an active philanthropist.

—— at Columbia, S. C., in Oct. last, of pleurisy with effusion, Dr. ROBERT W. GIBBES, formerly Professor of Anatomy and Surgery in the Medical Department of the State University. Dr. G. was an ardent student, had an extensive practice, and enjoyed the esteem of the whole community.

—— In Maryland, at an advanced age, Dr. PETER PORCHER, of Charleston, S. C.

—— at Charleston, of consumption, Dr. W. F. ROBERTSON, aged 41.

FOREIGN INTELLIGENCE.

A Certain Cure for Rheumatism.—Judging from his article in the *Wiener medizinische Presse*, Dr. FRANZ HELLER is an enthusiast in the administration of caustic ammonia in rheumatism. For several years he had been a sufferer from severe muscular rheumatism in the right shoulder; he had taken all the common antirheumatic remedies with but little alleviation, when he began to reason that in rheumatism, as in gout, there may be a uric acid diathesis; he thought that liquor ammoniæ, on account of its rapid volatilization, would be the remedy most readily absorbed, and the most prompt in action. In almost the same moment, in which he took one drop, diluted with water, he felt a complete relief from the pain which had lasted for ten hours; he was now able to move freely the arm which, an instant before, he could scarcely bear to have touched. The remedy, he claims, has proved a positive cure in all recent cases of muscular rheumatism which have fallen under his observation; he cites numerous cases in which relief, as instantaneous as his own, was experienced.

He also observed its effects in several cases of acute articular rheumatism, in two of which six drops sufficed to subdue the pain and swelling within a period of twenty-four hours.

In one case of chronic rheumatism of a finger joint, which had lasted for over half a year, the simple administration of the ammonia completely dispelled the inflammation and pain in the joint within two days.

He then discusses the mode of action of his remedy. "If we consider an excessive acidity as the cause of the rheumatism, we can scarcely claim in the cases in which one drop will instantaneously relieve the pain in recent rheumatism, that that one drop was sufficient to counteract the effects of the excess of uric or (according to Fuller) lactic acid.

"Nothing remains, therefore, but for us to seek for the source of rheumatism in a morbid nervous activity induced by disturbances of nutrition, and to believe that the ammonia acts as a nervine directly upon the nerves."

After the cure of one attack of rheumatism, our object should be to put the patient in such a condition as to prevent their recurrence. This, the writer thinks, can be done by building up the general system, and thus diminishing the nervous excitability.—*Clinic*, Jan. 1, 1876.

Removal of a Wounded Kidney.—M. MARVAUD, Surgeon-Major in an Algerian regiment, relates (*Rev. de Méd. Militaire*, October) the case of a young Arab woman who had been severely wounded in the right lumbar region by means of a long knife or yataghan. The instrument, cutting only on one edge, had a thick back, and on withdrawing it the right kidney was also drawn out of the wound, between the lips of which it remained strangulated. There was considerable hemorrhage, but this soon stopped. A silk ligature was passed around the pedicle of the extruded organ, and at the end of some weeks the kidney was separated—the patient continuing in good health the whole time, and the secretion of urine being normal. She was discharged perfectly well two months after admission.—*Med. Times and Gaz.*, Dec. 18, 1875.

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Ulcerated Nipples.—M. Legroux advises the following treatment: Spread with a camel-hair brush a layer of elastic collodion around the nipple, in a radius of an inch or more; a piece of gold-beater's skin should then be placed over the nipple and collodion, taking care to make a few holes with a pin over the part of the gold-beater's skin which covers the nipple, so as to allow the milk to ooze through. No collodion should be spread on the nipple itself, as some pain might thereby be occasioned. By the rapid evaporation of the ether the collodion dries up, and the gold-beater's skin adheres. The nipple is then more or less pressed down by the latter, which in drying becomes tense. When the child is to be nursed, the end of the nipple should be wetted with a little water. The gold-beater's skin which covers it becomes soft and supple, allows the nipple to swell, and protects the ulcers and fissures from the strain of suction. The mother or wet-nurse thus suffers no pain, and the ulcers heal in a few days.—*Lancet*, Dec. 11, from *Annales de Gynécologie*, Nov. 1875.

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Citrate of Iron and Quinetum.—This is a new salt, which, like the citrate of iron and quinia, is in thin scales, of a greenish golden-yellow colour, and readily dissolves in water, forming a clear solution.

The process of Dr. de Vrij for obtaining all the alkaloids of the East India red bark (to which have been given the name Quinetum), and the introduction of the sulphate by Mr. Whiffin, promise to be of great importance both in commerce and therapeutics. It appears to be well established that every one of the chinchona bark alkaloids is possessed of antiperiodic properties; and quinia is generally considered the most powerful and certain in intermittent and remittent fevers. The relative value of the whole group as they exist in the bark, however, has not been at present experimentally determined, although the presumption is that the alkaloids collectively may prove to be in some respects more efficacious than any one of them when separately employed.

Many practitioners have expressed the opinion that quinia alone does not fully represent the remedial powers of the bark in substance. Is this opinion based upon experience in the employment of these remedies as general tonics and restoratives, or as antiperiodics? The citrate of iron and quinia, for the most part, is employed as a tonic and restorative, and we may fairly anticipate that the citrate of iron and quinetum will be found to equal, if not to excel, in efficacy the corresponding salt of quinia for these purposes. At the same time, a considerable saving will be effected by its use, it being cheaper than quinia; and, as the employment of the latter is much restricted by its costliness, we may hope the introduction of quinetum and its salt will prove a very general advantage.—*Lancet*, Dec. 18, 1875.

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Subcutaneous Injection of Water.—Dr. Lélut, in a communication to *L'Union Médicale* of October 5th, states that, during the last three months, he has employed subcutaneous injections of water only for the relief of pain, with the most successful results. He relates how he was induced to adopt this method of treatment by pure accident. He had left a bottle containing a solution of morphia on his desk. His servant upset the bottle, and filled it with water to conceal her carelessness. The next day Dr. Lélut, having occasion to repeat a hypodermic injection in the case of a patient suffering from sciatica, used the liquid from the usual bottle. When he saw his patient the next day, he found him in a most lively frame of mind, and was thanked by him in the following terms: "Oh! doctor, how grateful I am to you. You relieved all my pain without making me feel sick."

He was astonished at this result in a patient who had suffered from nausea and vomiting after each injection. He naturally proceeded to examine the solution used, and was astonished to find only pure water in the bottle. He repeated the experiment during the ensuing days on several patients, and invariably found that he gave them relief and avoided nausea and vomiting; he has consequently, as above stated, continued to employ the same plan from June last up to the present time, with, as a rule, satisfactory results.—*Brit. Med. Journ.*, Nov. 27, 1875.

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Chloride of Lead as a Deodorizer and Disinfectant.—Dr. R. H. Goolden calls attention (*Lancet*, Dec. 11, 1875) to the value of chloride of lead, which he says is the most powerful and economical deodorizer and disinfectant.

To prepare it for use he directs to take half a drachm of nitrate of lead, dissolve it in a pint or more of boiling water, then dissolve two drachms of common salt in a bucket of water, and pour the two solutions together; allow the sediment to subside. The clear supernatent fluid will be a saturated solution of chloride of lead. A cloth dipped in this solution and hung up in a room will sweeten a fetid atmosphere instantaneously, or the solution thrown down a sink, water-closet, or drain, or over a heap of dung or other refuse, will produce a like result. Even the tarnishing of gold and silver plate may be prevented by a rag dipped in the solution being hung up in the room or window where it is exposed.

He relates some striking instances of the instantaneous and efficient action of this preparation.

—

Deaths from Chloroform.—A recent death from chloroform in the practice of Mr. Chesshire, one of the surgeons of the Birmingham Eye Hospital, presents some peculiar features. The patient was a gardener, forty-two years of age, who had received a gunshot wound in his right eye while beating for game on the 16th ultimo. The safety of the other eye being endangered, Mr. Chesshire recommended extirpation of the affected eyeball. Forty or fifty drops of chloroform were administered on a towel, and the patient "immediately became semi-unconscious." The operation was commenced, but, the patient not appearing to be sufficiently under the influence of chloroform, forty or fifty drops more were given. Mr. W. M. Jackson, of Smethwick, noticing a failure in the patient's pulse, at once seized him by the feet and lowered his head. He afterwards practised artificial respiration, but the man died in about half an hour from the time of the first administration of the chloroform. The patient had no disease of the heart, and was free from excitement prior to the operation. It is remarkable how small a quantity of chloroform proved fatal in this case; probably not more than two drachms were used altogether, and every precaution was taken in the administration of the drug, and yet death resulted.—*Lancet*, Dec. 11, 1875.

"We have heard of another death recently in London," it is stated in the *Brit. Med. Journ.* (Dec. 11), "in the practice of a metropolitan hospital surgeon, and of which we have seen as yet no public notice."

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Sudden Death after Thoracentesis.—Two cases of this have been noticed in our previous Nos. (Sept. p. 138, and Dec. p. 185), another has been reported by M. Vallin (*Gaz. des Hôpitaux*), and the subject has lately been brought forward at the *Soc. Méd. des Hôp.*, by M. M. Raynaud, who reported three cases of the kind. The cause of this accident gave rise to much discussion, and it is still left in doubt. M. Libermann quoted a case to prove that sudden death after thoracentesis may be merely a coincidence, and due to causes altogether independent of this operation. It was that of a soldier, twenty-four years of age, who had never been previously ill, and who came into hospital with all the signs of pleuritic effusion of the right side. Palpation of the abdomen was painless. He never complained of any abdominal pain, and the constipation from which he suffered was overcome by two doses of rhubarb. The effusion not yielding to blisters, Dieulafoy's aspirator was used. The fluid quickly reaccumulated, and a fresh tapping was required five days afterwards. A third puncture eight days afterwards gave exit to 1500 grammes of fluid, which was altogether purulent. Half an hour after the eighth tapping, which was performed in the usual way, the patient had a desire to go to stool. He was lifted and supported on the vessel; he meanwhile suddenly became pale, and died after passing a quantity of sero-sanguinolent fluid. At the post-mortem examination it was found that the several punctures had caused no local disturbance, and that death had been caused by hemorrhage from the arteria gastro-epiploica dextra, owing to a perforating ulcer of the duodenum which had not been known of during life. The liver, spleen, and kidneys presented numerous points of granulo-fatty degeneration. The stomach, duodenum, and jejunum were distended with gas, liquid, and a solid elastic body, which, on opening the stomach, was seen to be an immense blood-clot bathed in the serum which had been exuded from it. On the posterior surface of the duodenum was a round ulcer destroying the whole thickness of the intestinal wall, its base being formed by the pancreas, to which the sharply cut margins were adherent.—*Med. Times and Gaz.*, Dec. 11, 1875.

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Probable Reduction of Intussusception by Copious Injections with the Body Inverted.—In the following cases the value of copious injections, while the pelvis was raised, was well exemplified.

An infant, aged seven months, came under care Sept. 26, 1874. On the previous morning it was taken ill suddenly, began to strain to pass a motion, seemed in pain, and passed only blood and slime, and was sick. Mr. Butlin and Dr. Dixon, of Victoria-park, saw the child, and suspected that intussusception had occurred. Air was injected with a pair of bellows, but no relief followed. When seen, about thirty hours after the commencement of the symptoms, the child was straining constantly, as if about to pass a motion, and seemed in pain. A finger passed up the rectum encountered some obstruction high up, which felt as if it might be the lower end of an intussusception, but it was so high up that this could not positively be stated to be the case. When withdrawn, the finger was covered with blood and slime. No definite tumour could be felt on the left side through the abdominal wall.

A quantity of lukewarm water was injected into the rectum while the child was held up by the feet. As large a quantity as possible was injected. The child seemed relieved immediately the fluid was allowed to run out, and on examination by the rectum no sensation was communicated to the finger similar to that felt before the injection. When seen the next day, the child seemed quite lively and well, and had remained so when heard of some time later.

Straining, accompanied by the passage of blood and slime by the rectum, and the presence of blood and slime in the rectum, detected on examination, are so fairly characteristic of the occurrence of intussusception in children, that the diagnosis in this case admits of little doubt. It is confirmed by the probable presence of a bulging within the rectum, and by the great and immediate relief which followed the treatment adopted. It is probably not very material whether air or water be injected, but it is very important to have the patient held up by the heels. Mr. Hutchinson has repeatedly insisted on this. An American physician (Dr. Battey) has lately stated that fluid can be made to gravitate *slowly* through the ileo-cæcal valve, along the whole tract of the small intestine, through the stomach, and even out of the mouth. However this may be, there can be no doubt that in certain cases of obstruction of the bowels the injection of copious enemata during or followed by inversion of the body, and, if necessary, whilst the patient is under the influence of chloroform, is succeeded by complete relief, even where the symptoms are very acute. A case of this sort came under Mr. Tay's care at the London Hospital in 1872. It is sometimes difficult to ascertain *when the injection has been carried far enough* in cases of intussusception. A child aged fifteen months was taken to the North-

Eastern Hospital on June 30, 1870, suffering from an intussusception of twelve hours' duration. It could be felt just within the anus. The child was sick, had passed blood and mucus, and seemed in great pain. The invagination could not be replaced with the finger, but when warm water was freely injected, the tumour which had been felt slipped out of reach, and great relief was apparently afforded the child. It was considered that the intussusception had been reduced. The child, however, continued to pass only bloody slime, and when seen the following day some tumour could be detected as high up as the finger would reach. A copious injection was again thrown up, while chloroform was given, and the child was inverted, but no change was produced in the symptoms. The child lived for six days altogether, and at the post-mortem an exceedingly short invagination of the transverse into the descending colon was found. There were no traces of peritonitis, and the invagination was easily reducible. Probably more perseverance *at first*, after the injection had seemed successful, would have completed the release of the bowel. This case showed the fallacy of being deterred from operative procedures on the supposition that peritonitis must necessarily have set in and that the parts were glued together.—*Lancet*, Jan. 1, 1876.

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Importance of Accurate Vision in Engine-drivers.—Mr. Spencer Watson, in a short communication to the *Medical Times and Gazette* (Dec. 11, 1875), says that "passengers by express trains would be somewhat uneasy, not to say alarmed, if they were aware that it is a matter of some uncertainty whether the engine-driver of the train in which he is travelling is or is not suffering from commencing amaurosis. That such a state of things, however, is not only possible, but actually exists, the following case has convinced me. A man has been attending at the Central London Ophthalmic Hospital during the last three weeks, whose sight is so defective that objects which he ought to see distinctly at 200 feet can only be seen at twenty. On ophthalmoscopic examination I find indications of commencing atrophy of the optic disks, and nebulæ of both corneæ. He smokes about half an ounce of tobacco daily. I at first did not know that this man was an engine-driver, but the patient himself at length suggested that perhaps it would be well, now the 'snow and fogs' were coming on, that he should give up work in order 'to prevent accidents.' In this view I immediately concurred, and wrote to the secretary of the company in whose service the man was. I hope, therefore, that he will no longer be the driver, as he was up to last Wednesday, of one of the fastest and most important express trains in England. Comment is, I think, unnecessary.

"This patient informs me that he 'never killed but one man,' and that was his (the victim's) own fault."

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Visit of Prof. Depaul to Brazil.—The Paris *Figaro* of Dec. 1 contains an account of an interview which the writer, M. Adrien Marx, had had with Professor Depaul, the famous obstetrician, since his return from Brazil, whither he went to attend the Imperial Princess, the Countess d'Eu, in her confinement. A few particulars from the article may interest our readers. It appears that after nine years of sterile married life, the Countess, the daughter of the Emperor of the Brazils, became pregnant after consulting Dr. Depaul in Paris, and following the treatment he recommended; but the child which was born, was born dead. She became again pregnant, and this time the Emperor solicited Depaul to come out himself, and conduct the delivery; and he at last was persuaded to go. On his arrival at Rio Janiero he met with a most frigid reception from almost every one except the immediate attendants of the Princess. The newspapers were against him, and the native physicians gave him the cold shoulder. Although he personally visited the medical men connected with the Court, on the day of the accouchement he found himself at the bedside of the Princess alone and without assistance. Only the Count d'Eu, the son of the Duc de Nemours, was unwearied in his devoted attention to his wife. After a thirteen hours' labour, which had to be ended with the forceps, a baby weighing twelve pounds (livres) was at last brought into the world; but for an hour it was doubted whether it would survive, and it was only after artificial respiration and other measures had been vigorously tried that it gave signs of life. However, it is now a healthy child. The most curious and amusing feature about Dr. Depaul's visit was the revulsion of public opinion in his favour when the successful result of his visit became known. The papers praised him, his *confrères* congratulated him, and the academies and scientific bodies sent him crowns and addresses; he was invited to banquets, and was *fêted* in a wonderful way. "After the event," says Depaul, "my room was never empty from morning till night, and I was obliged, in spite of a determination to the contrary, to give consultations. In less than eight days, 15,000 francs worth of piastres were laid on my table as fees." Professor Depaul has certainly good reason to be satisfied with his trip across the ocean.—*Med. Times and Gaz.*, Dec. 11, 1875.

Prof. D. is said to have been tempted to go to Brazil by the offer of fifty thousand dollars as a fee, and ten thousand dollars for his expenses.

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Paris Medical Faculty.—On account of the laborious character of the duties required of the Dean of this Faculty, it has been decided to appoint as assistants two Vice Deans or assessors. In compliance with this arrangement, Prof. Vulpian has been elected Dean, in place of Prof. Wurtz, recently resigned, and Professors Sappey and Broca as his assessors. By a recent decree of the Minister of Public Instruction M. Wurtz has been nominated honorary Dean.

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Rotunda Lying-in Hospital, Dublin.—Dr. Lombe Atthill has been chosen Master of this famous institution in place of Dr. George Johnson, whose term of office had expired.

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Private Free Dispensaries.—Vienna medical men are very much excited just now over the question of private free dispensaries as a mode of advertising the specialties of their originators, and the medical journals are warmly denouncing these institutions.—*Medical Record,* Oct. 2, 1875.

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Roughing Horses.—Every physician is aware of the risks of injury and the delay occasioned during winter in driving over ice-covered streets and roads. Mr. Fleming, of the Royal Engineers, it is stated (*The Sanitary Record,* Dec. 11), has tried a plan suggested to him from Russia, which he strongly recommends, and which is free from the objection of great expense. It consists simply of punching a square hole in each heel of the shoe, which in ordinary weather may be kept closed by a piece of cork. In frost the cork is removed, and a steel spike inserted. If this steel "rough" be made to fit the hole exactly, it remains firm in its place, and is not liable to break off short at the neck like some of the screwed spikes. If Mr. Fleming's suggestion were widely adopted, the square steel spikes could be supplied at a very low figure, as machinery could be made to turn out three or four different sizes, each of uniform gauge, and the farriers could punch the holes to fit them with great exactness. We commend this plan to the notice of the large horse-owning firms, believing that it only requires a trial to establish it as the best system of "roughing" extant.

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Obituary Record.—Died, suddenly, from fatty degeneration of the heart, in London, Dec. 7, Mr. Acton, the author of numerous well-known works concerning the diseases of the urinary and generative organs, prostitution, and allied subjects.

—— at Christiania, Norway, on the 10th of December last, Dr. Wilhelm Boeck, well known by his peculiar views in regard to the treatment of syphilis by syphilization. He had many friends, but made few if any converts to his practice.

—— at Padua, Dec. 7, aged 63, Dr. Vincenzo Pinali, Professor of Clinical Medicine in the University of that city. He has left his library to the School of Medicine, and a capital of $100,000 for maintaining it.

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The style is clear, the arrangement admirable, and the figures excellent. Though much increased in bulk, it is still a moderately-sized volume. Every chapter bears evidence of a careful revision, and all the most important and trustworthy facts of recent physiological science have been incorporated.—*Canada Med. and Surg. Journ.*, Jan. 1876.

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In about two years after the issue of this excellent treatise a second has been called for. We regard the treatise as thoroughly sound and practical, and one which may with confidence be consulted in any emergency.—*The London Lancet*, Dec. 11, 1875.

The appearance of a second edition of this System is the fulfilment of the prophecy which we made in a former review, that the book was destined to "become a favorite." The additions by Dr. Parry are usually not abundant, but certain places which are pointed out as the weak part of Dr. Leishman's handicraft have been greatly strengthened by abundant and very judicious addenda.—*Phila. Med. Times*, Dec. 25, 1875.

HENRY C. LEA—Philadelphia.

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VOL. XXXIV. MARCH, 1876. No. 399.

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CLINICS.

CLINICAL LECTURES.

A Clinical Lecture on the best manner of employing Instruments in Cases of Stricture where much difficulty exists. By SIR HENRY THOMPSON, Emer. Prof. Surg. in Univ. Coll. Hospital.

I have now to consider the question, How are you to deal with a case of stricture of the urethra in which real difficulty exists in passing an instrument into the bladder? Let a case be supposed in which attempts have been made, perhaps by several hands, and hitherto without success.

First, let me point out in what the chief mechanical difficulties in such a case might consist. There are four:—

1. Extreme narrowness of the stricture.
2. The stricture may be tortuous.
3. It may be complicated with false passages.
4. The urethra behind the stricture may be irregularly dilated and reticulated.

Difficulties of another kind, not mechanical, are frequently met with; these are two in number, and are to be considered hereafter—viz. (1) the stricture may be very resilient, and liable to become narrower, and to produce absolute retention on any instrumental contact; and (2) any use of the instrument may produce in the patient an attack of rigors.

1. Let us consider first the mechanical causes of difficulty, of which the first is extreme narrowness.

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In regard to this, the first thing you must do is to see the patient make water. The failures to pass the instrument may not necessarily have arisen from narrowing of the urethra or from tortuosity; there may be a false passage in the canal. It may, indeed, be that there is no stricture at all. No greater mistakes are made than those which occur with patients who have little or no stricture, either from the surgeon not knowing well how to pass the instrument, or from there being a false passage into which it enters, so that it does not reach the bladder at all. You are first, then, to see the stream of water, perhaps on more than one occasion, so as to estimate it fairly, and you will judge by that what size of instrument is to be used. And always let the instrument correspond with the size of the stream which you see; but it should correspond only in this way—the instrument should be a little smaller. You will sometimes see a patient who scarcely passes a stream at all; the urine issues only in a succession of drops. This being his constant, and not a temporary or accidental, condition, how very small must be the instrument which is adapted in size to traverse fairly the stricture.

The first step to be taken with such a case, after having ascertained, as I assume to have been done, the situation of the stricture, is to introduce very gently the smallest English gum catheter without a stylet, and try to insinuate it through the obstruction. For this purpose I have endeavoured to obtain some exceedingly small instruments, much smaller than any hitherto made.[1] This tiny catheter, which I show you, containing a slender steel thread rather than a stylet, may be used either with or without it. The value of this little instrument, after its extreme tenuity, is its ability to transmit a drop of urine through its interior, and so assure you of its position when the bladder has been reached, an assurance, I need hardly tell you, of great importance. It is worth while making a careful and somewhat prolonged trial, and if you succeed, the instrument is to be tied in at once and the route secured. If I fail with this, I then try a silver catheter of the smallest size.

But there is one very important matter in relation to the silver instrument—namely, that it is an extremely dangerous one in inexperienced or in incautious hands. Nothing is easier than to implicate its slender point in a lacuna, and if the slightest force be used, the point leaves the route and finds a track among the loose tissues outside the urethral mucous membrane, and thus a false passage is commenced. If you cannot train your hand to employ it with extreme lightness and delicacy, by no means use it. It should be held and moved with so much tenderness, that if the point meets with any resistance in its course, the fingers rather should slip down the shaft than communicate pressure to the instrument. Any kind of force in its use is not to be thought of—its only value is in its capacity for being insinuated between closely applied surfaces, and any sense of opposition to its point is a clear intimation that its route may lie right or left, but not straight on. It is not fit for the hand of a tyro, but when he is habituated to the use of somewhat larger instruments, the ability to use this will follow. A careful trial, however, with the very small gum catheter, first without and then with the stylet, will in many cases make this unnecessary; but these failing, I know no instrument so valuable as a very fine silver one with a little increase of size in the shaft, to render it steady. The final three inches should not exceed half the size of No. 1 of the English scale; the shaft should gradually rise to fully No. 2.

2. A stricture may be more or less tortuous; in other words, it does not necessarily follow the exact direction of the urethra.

It may be a little on this side of the axis or on that, not necessarily in the middle. You may see this sometimes in the dead body; and you may infer it from experience on the living. When you have to deal with a very narrow or with a tortuous stricture, there are two quite distinct systems of using an instrument, either of which you may employ. What I have to say, then, applies to the manipulation necessary in all cases of difficulty under the present and preceding heads; and I have reserved it therefore until now. First, the little instrument employed, whatever its nature, may be applied by what may be called "groping"—that is, by carrying the point in any and every direction, with the utmost care of course, until by chance it has entered into the stricture, as you may feel by the sensation of the point being "held" or "grasped." For this purpose very slender solid instruments are made of gum-elastic, of catgut covered or not with gum, or of whalebone, since these can be produced of rather smaller size than the hollow instruments which I have just described. In order to add to the chance, as is supposed, of finding the orifice, there are some of the first-named material, the ends of which are formed somewhat into the shape of a corkscrew, or are otherwise made to deviate from a straight line. All these are of French design and workmanship, but none have the advantage of being hollow, to demonstrate their presence in the bladder when they arrive there.

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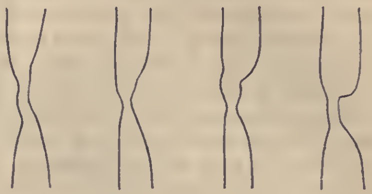
[1] Messrs. Weiss and Son have taken great pains to accomplish this for me, and have produced some slender delicate instruments much smaller than No. 1, which have been of great service.

Now, I advise you not to rely on mere groping to find the orifice; it is exceedingly dull, mechanical work to be constantly groping for a considerable time on the chance of success.

There is a method of search, however, conducted on a fixed principle, which I much prefer and always employ. I advise you to adopt that, or any other you can devise, provided that it be a systematic one, and also an exhaustive manner of making the necessary exploration and researches for the orifice of the stricture. Some of you have often seen me apply it to patients in the wards upstairs. According to this manner you proceed systematically and examine each side of the urethra *seriatim*. We will suppose the urethra to require examination on four sides—a roof, a floor, a right side, and a left side. You are to take your slender silver catheter and slide its point delicately along each side successively from the orifice to the place of obstruction. If the orifice of the stricture is not *exactly* in the middle line, and we may fairly believe that it rarely is so, then there is one side of the passage which will more easily lead into the narrow way than any other. These diagrams will show what I mean. If I go down on this side I shall probably not get into the stricture; but if I slide down gradually on the other I shall probably get the instrument in, because you see there is less obstruction on that side. Begin, then, by the roof. The roof is the firmest part, the least likely to furnish obstruction in the way of ducts or lacunæ, and by following it you will be most likely to carry the point in. The floor, on the contrary, is the softest, loosest, and most spongy part, and will be most likely to yield to the instrument and give way. If your first effort does not succeed, take the right side; if that does not do, take the left; if that fails, try the floor. If you are very careful, you may make the attempt in this manner for thirty or forty minutes without doing any damage; but if the patient suffers, or if he bleeds, or if you are losing patience, give up the task, or you may make a false passage, and increase the difficulty considerably.



3. The existence of a false passage leading out of the urethra, is another serious obstacle to the introduction of instruments into the bladder.

The principle which must guide your action here is to be very careful to avoid the side on which the false passage is. A false passage commences usually on the floor, and no doubt for a reason already mentioned—viz., the fact of the structures below being looser and more delicate than those above. When you examine a patient with a false passage, you may find the instrument passing to its very end, notwithstanding which no urine flows. Hence the false notion of stricture at the neck of the bladder. When the instrument has thus passed, put your finger into the rectum, and you will know instantly whether there is a false passage; for, if so, there are only the coats of the bowel, which are very thin, between your finger and the instrument, so that you feel it very distinctly; and very commonly not in the middle line, but rather to the right or to the left. But if the instrument is in the right passage, the whole thickness of the prostate, not always very considerable, is felt between it and your finger. It is almost always in the bulbous portion that the instrument leaves the urethra and gets under the prostate. What you are to do, then, is to withdraw the catheter two inches or so, pass it on again, keeping as close along the upper part of the urethra as you can, ascertaining by means of the finger in the bowel that the instrument is not passing into the old route. But when a false passage exists, it sometimes constitutes the chief obstacle to the introduction of an instrument, for, as I have before hinted, the stricture itself may be only inconsiderable. The size of the stream will help to determine this point; and if, so far from being a mere thread, it has a volume equal to a No. 6 or 7 catheter, use a No. 5 silver one, so that you can guide it, and try each side of the urethra successively until you discover which it is that enables you to clear the orifice of the false passage. Remember the result, and you have a key to the difficulty which will enable you to overcome it with ease on the next occasion.

4. Difficulty presented by dilatation and reticulation of the urethra behind the stricture.

Suppose next, that, following these hints, you have carried the instrument through the stricture; there is a sort of grasp felt on attempting to move the instrument which is quite unmistakable. But that very "grasp," which you are so satisfied to feel, makes it less easy to manipulate the point of the catheter after it is through the stricture, and you may have a source of danger to encounter in the urethra beyond. Thus the mucous membrane, being sometimes reticulated from the presence of dilated lacunæ, it is easy to engage the point of the instrument in one of these, and make a false passage. Besides this, as the result of long continued fluid pressure and straining, the urethra behind the stricture is occasionally much dilated, and the whole surface is so irregular that it requires care and an acquaintance with this condition to traverse it safely. Here especially, with a small instrument already firmly grasped, you may require all the caution you can command in completing its safe course into the bladder.—*Lancet*, Jan. 1876.

HOSPITAL NOTES AND GLEANINGS.

Unreduced Dislocation of the Head of the Humerus of one Month's Standing; Question of Fracture.—There are few inquiries the diagnosis of which is more obscure, or the treatment of which is more difficult, than that of dislocation of the head of the humerus, complicated with fracture of the bone near the surgical, or through the anatomical, neck. If the nature of the case be recognized, it is doubtless the best practice to completely anæsthetize the patient, and to reduce the head of the bone by manipulation, and then to treat the case as one of fracture. The surgeon should always satisfy himself that the head of the bone has been replaced, as it is certain that there is no time or opportunity so favourable for the reduction of a dislocation as that which immediately follows the infliction of the injury.

T. H. D———, aged fifty-four, was admitted on August 27, 1875. He stated that he fell off a wagon of hay a month ago, striking his left elbow against a wall as he fell, and that when he got up he found that he could not use his arm. A surgeon saw him five hours afterwards, who "pulled his arm, but did him no good," and told him he had broken three of his ribs. His arm was bandaged to his side, but had to be released in three days, as he could not bear the pain. A week or so after the accident he was seen by another medical man, who put his foot in his armpit and dragged at his arm, but failed to "put him right."

On admission, a dislocation of the head of the left humerus into the axilla was recognized. There was no crepitus. The next day chloroform was given to complete muscular relaxation, and the arm was rotated and twisted to break down adhesions which might have formed. A fair amount of force was used, and creaking sounds gave evidence apparently of the adhesions giving way. The limb was then manipulated by extension, rotation, etc., with a view to reduction, but without success. The shoulder was evidently more rounded, but on examining the limb more carefully, and placing the fingers on the head of the bone, the latter was found not to move. It was now apparent that in addition to dislocation there was fracture of the neck. The patient was put to bed with the arm bandaged to the side, and with the elbow well elevated. The next day the shoulder was considerably swollen and painful, and the bandages were removed, and hot fomentations, with tincture of opium, applied, the limb resting on a pillow. So soon as the swelling and pain had subsided, passive motion of the joint was practised daily, and on Sept. 24th he was discharged at his own request with improved mobility at the shoulder.

Remarks.—The interesting question in this case seems to be this: Was there fracture as well as dislocation at the time of the accident, and was the union broken down by manipulation? or was the bone broken by the force used to reduce the dislocation? It could scarcely have been the latter, because the force employed did not seem sufficient. In favour of the former is the *evidence of fracture*, as, according to the man's statement, the surgeon who first saw him said he had broken his ribs. Assuming this to be the correct view we have here a demonstration of the possibility of breaking down union of fractured ends of bones, one month after the accident, without using any great amount of force.

In a recent number of the *Guy's Hospital Gazette* may be found the record of an almost identical case, in which Mr. Howse pursued a similar line of treatment with the same result. He does not mince matters, however, for he says that "in attempting to violently break down the adhesions he fractured the humerus." Dr. Sheen believes that it is scarcely possible to fracture a perfect humerus by such means unless both ends were fixed, and extreme violence used.—*Lancet*, Feb. 5, 1876.

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Case of Paracentesis Pericardii; Recovery.—The fact that the operation of tapping the pericardium for the removal of effused fluids is still *sub lite* renders the record of every case in which this operation has been performed peculiarly valuable and interesting, whatever the ultimate issue. In the subjoined case the benefit derived from the treatment was marked, and it is scarcely too much to say that the patient's life was actually saved by drawing off the serous fluid, which was found to measure forty-two ounces.

For the notes of the following interesting case we are indebted to Mr. Thomas Elliott, M.B., late house-surgeon in the Bristol General Hospital.

John M———, aged sixty, a carpenter, was admitted into Bristol General Hospital, on April 26th, 1875. Forty years ago he had rheumatic fever, and again two years later. His heart, he stated, was affected two years prior to the first attack. After these illnesses he enjoyed very good health till the close of the year 1874. He served as an "army carpenter" out in the Crimea, where, to use his own expression, he had "a lot of rough work." A month before Christmas, 1874, he was confined to bed for a week with rheumatism. For the two months prior to admission he had been "complaining," and troubled with a cough, and two weeks before admission his feet and legs began to swell.

On admission there was general anasarca, shortness of breath, and a feeble pulse. Heart-action rapid and irregular, with an indistinct systolic mitral bruit. Lungs anteriorly resonant, posteriorly resonant at right base, dull at left base; respiration exaggerated over right side, tubular at left base.

On April 28th the patient was much worse, apparently moribund. Breathing very oppressive, and could only be carried on when the man was lying on the left side, and slightly on his face. The face was of a livid colour; veins in neck full and tortuous, but not pulsating. Heart's apex could not be seen or felt; area of dulness greatly increased, but difficult to define on account of external œdema. The sounds were very distant and indistinct, almost inaudible. Lungs resonant anteriorly and at right base, dull at left base; respiration exaggerated over right side, tubular at left base; no appreciable difference between the two sides in conduction of voice sounds.

From these symptoms and signs Dr. Burder concluded that the patient's great and immediate distress was due to dropsy of the pericardium, and that therefore paracentesis should at once be done. The operation was performed by the house-surgeon (Mr. Thomas Elliott) by means of Dieulafoy's pneumatic aspirator, the needle being inserted between the fifth and sixth ribs, and an inch to the right of the nipple. Forty-two ounces of clear, pale, straw-coloured fluid were drawn off. Towards the close of the operation the apex of the heart was felt to strike once or twice against the needle, but it ceased on placing the needle more horizontally. It is here worth stating, especially from a practical point, that for cases of paracentesis the needles of the aspirator might with advantage be graduated. At times it is extremely difficult to estimate how far the needle has penetrated, as it was in this case, where there was a considerable amount of external œdema.

The patient expressed himself as easier after the operation, but it was not till some hours after that there was any marked improvement.

On April 29th the patient looked much better; the face was of a better hue, breathing much easier, and he could lie on either side or on his back. Respiration 50 per minute; pulse feeble. Dulness over base of left lung diminished, and not extending so high upwards. Respiration over same region much more audible, with some moist sounds. Area of heart's dulness definable, sounds not so audible as immediately after tapping. On April 30th the improvement was greater, the pulse was much stronger, and the general anasarca had gone down a good deal. On May 2d he said that he had slept but little the last two nights, on account of continued coughing, but the next night he slept much better. On May 3d he could lie on either side, but said that if he did so he must be well over on his face, but he preferred lying on the left side. Heart-sounds indistinct; lower extremities more œdematous.

From this time he continued to improve, and on May 31st the dropsy had entirely disappeared and the heart's apex could be seen and felt beating about an inch below the left nipple. The area of dulness was definable and greatly diminished; the sounds were louder, and an indistinct bruit, apparently louder towards the base, but not carried up along the large blood-vessels, could be heard. There was still a line of dulness posteriorly at right base, where also the respiration was feeble. After this he sat up daily, but if he made any exertion he suffered at once from dyspnœa and palpitation. The heart's beat was less distinct and was more to the outer side of left nipple than before; sounds irregular and confused.

On July 6th he was discharged as an out-patient, much improved, and able to move about more freely.—*Lancet*, Jan. 8, 1876.

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A Case of Aortic Aneurism giving Rise to General Dropsy; Autopsy.—The following case at the Seamen's Hospital under the care of Dr. Ralfe is interesting, not merely from the difficulties attending the diagnosis, but also from its exhibiting a rare complication arising from the pressure of the aneurismal tumour. The notes of the case (condensed) have been furnished by Dr. H. Law, the house physician.

S. H. G——, aged thirty-seven, was admitted January 27th, 1875, complaining of general dropsy and chronic dysentery. He stated that his general health had been good till twelve months ago, when he had rheumatic fever, for which he was treated at the Shanghai Hospital, his employment being that of a pilot on Chinese Rivers. After his discharge from the hospital he acquired dysentery, and three months before his admission dropsy set in, beginning in the lower parts and gradually invading the general integuments. No urinary derangement had been noticed.

When admitted he presented great general œdema of all parts below the neck, slight lividity of face, occasional cough with frothy sputum, dyspnœa on exertion. No thoracic abnormal dulness could be made out; heart's impulse barely perceptible through the greatly distended integument; sounds feeble; coarse crepitation at the bases of both lungs. No increase of hepatic or splenic dulness. Apparently some fluid in abdominal cavity. Urine diminished in quantity; no albumen. The stools were frequent (five to twelve a day), bloody, lumpy, and slimy. No history or evidence of syphilis.

The dysentery, under the castor oil treatment, yielded about the end of April. The dropsy increased till the legs and arms attained an enormous size, but in other respects for some time he improved. The shortness of breath was trifling and never paroxysmal, the cough abated, and he had no pain. Occasionally a faint short murmur of a rough character, intensified after a forced inspiration, was audible at the sternal end of the sixth left costal cartilage, not conducted in any direction. The urine remained free from albumen till a few weeks previous to his death. Puncture of the legs gave him relief for a short time, but effusion into the left chest presented itself about the end of June, and he sank. Death occurred on June 30th. Some time before his death a naval surgeon visiting the hospital recognized the patient, and remembered his having been in the Chinese Hospital; and he stated that it was thought at that time the man had some cardiac valvular mischief.

At the post-mortem examination a considerable quantity of fluid was found in the left pleura and abdomen. The pericardium was adherent, and a sacculated aneurism of the ascending aorta developed chiefly to the right side and posteriorly; from this aneurism another, smaller, projected forwards in close contact with the right auricle, which no doubt during life was pressed on by it; valves healthy and competent. The other organs presented nothing of special interest.

Dr. Ralfe observed that the difficulties attending the diagnosis of this case were of no ordinary kind. The history of the case, the statement that a valvular lesion had been detected some months previously, the presence of general dropsy, and a certain degree of bronchitis, led to the supposition that the obstruction to the circulation lay in some defect of the valves. Nor was the absence of any murmur that could be considered endocardial, opposed to such a view. At the same time, the possibility of the obstruction being caused by some thoracic tumour was not lost sight of. The patient being naturally fat rendered it difficult to detect any increase of abnormal dulness, and this difficulty was augmented by the dropsy in the integuments. Naturally, however, from the position and direction of the tumour, the dulness, even in a leaner person, would not have been very appreciable. The dropsical condition of the integuments also prevented an impulse being communicated. There was no pain, and all the usual pressure symptoms of thoracic tumour were absent. Dr. Ralfe thought the condition revealed by the post-mortem sufficient to account for the dropsy. The right auricle, when charged with blood during life, would be in contact with the smaller and laterally projecting aneurism, and thus a considerable amount of obstruction to the circulation would be produced. —*Lancet*, Jan. 15, 1876.

MEDICAL NEWS.

ORIGINAL ARTICLES.

Epilepsy; One Case cured and two benefited by the Use of Bromide of Potassium, in gradually increasing doses, combined with Oxide of Zinc. By E. G. Coleman, M.D., of Arkadelphia, Arkansas.

Case I. J. T., a male aged 35 years, has had epileptic attacks for four years. The primary cause of the disease was a blow on the head, in being thrown from a horse. Epilepsy developing itself, he became subject to monthly attacks, with paroxysms occasionally intervening.

Having regulated his digestion, which was in a disordered state, I began the pot. bromid. with twenty grain doses ter die (given in a saturated solution), and increased the amount each day one and a half grs., till he had taken one hundred and sixty-five grs. per diem, or 55 grs. at a dose; the medicine being taken before each meal. This amount being continued for several months, and no relapses occurring, I decreased the dose as it had been advanced, until he ceased to take the medicine. During this period, I gave the zinci oxid. in two grain doses after each meal. Two years have now passed since the cessation of treatment, and he has had no further trouble, to within a few months ago, when I saw him.

Case II. D. B., aged 31 years, was attacked when quite young with a severe type of pneumonia, and from that time has been subject to epilepsy; the paroxysms, at first mild, became more and more frequent and severe, until they amounted to several during the day, and one or two at night. These attacks were not regular, sometimes ceasing for a day or two, to again recur as usual. Began with 20 gr. doses, and increased as in the previous case to one hundred and sixty-five ter die, when he became so thoroughly brominized that he refused to take the medicine; during this period he was clear of attacks, but, reducing the quantity to one hundred and twenty grs., they again returned, though greatly modified in frequency and severity. Gave zinci ox. two grs. after each meal. Patient left the State, and I have not heard from him since.

Case III. B. E., male, aged 20 years. When but a child a violent attack of "typhoid fever" seized him, and he was left in an epileptic condition, with paroxysms frequent (3 or 4 per diem), though mild. When first he came under observation and treatment, his mind was notably impaired (almost complete dementia), and the one subject which occupied his thoughts was his cure. As, in the previous cases, he had taken the bromide, I began with sixty grs. per diem, though with but little hope as to permanent benefit. He improved, however, beyond my expectations, and continued to do so as long as he was under my charge, but distance prevented intercourse, and I have not heard from him in a long time.

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Case of Strangulated Inguino-scrotal Hernia, with Omental Tumour; Herniotomy; Recovery. By H. V. Passage, A.M., M.D., Peru, Indiana.

Sept. 4, 1875, I was called to Cass County to see a large, muscular man of good constitution, æt. 41, who had been labouring under the pain of a strangulated hernia for about thirty-six hours. I received the following history from the patient and his family physician: Twenty-seven years ago, when he was 14 years old, he had a fall from a tree, which produced (besides other transient injuries) an inguinal hernia of the left side, which was reduced without trouble. Since that time he has been continually troubled with hernia. On the morning of Sept. 3d he went out to the field to plow, and feeling the hernia descend he attempted to reduce it by taxis (as he had done on former occasions), but failed. While he was on his way to the house, he felt the hernia come down with a rush (as he expressed it). He immediately sent for the two Drs. Quick of Waverly, and they in turn sent for Drs. McGee and Laramor of Logansport. Attempts at reduction were kept up until four o'clock P. M. of the next day, when I performed herniotomy. When I cut down to the peritoneal covering, I found the stricture outside the sac. Passing the index finger of the left hand beneath the stricture, I cut it with Cooper's hernia knife, made mild attempts at reduction, and then opened the sac. Considerable fluid escaped, and the solid contents came to view. Upon examination they proved to be two tumours partially attached to each other, and both attached to the omentum only. They were of a fibro-cellular character, and weighed eleven ounces and one drachm. Having no other attachment than the omentum, they were easily detached and removed. The small amount of omentum contained in the sac readily receded into the abdomen.

The wound was closed with silk ligatures, which were removed on the 6th day, and on the 15th day the patient was up. So far as I know tumours of the omentum are rare. The only cases I have seen reported are two by Dr. J. T. Miner in the *Buffalo Medical and Surgical Journal* for , 1875. When the sac of a hernia is habitually occupied by omentum, the latter tissue becomes indurated and thickened.

In conducting a dissecting room for private classes for the last fourteen years, I have frequently observed a hypertrophied condition of the omentum, but have never witnessed anything like the specimens in this case. At present (six weeks after the operation) the man is going about without a truss. The operation produced a radical cure.

Four drachms of Fluid Extract of Belladonna swallowed; Tincture of Opium given as an Antidote; Recovery. By C. Y. Slagle, M.D., of Winnebago City, Minn.

I was called in haste January 16, 1876, at 7 P. M., to see A. T., aged 20, who was reported to have become suddenly insane and violent.

Found him in a state of wild delirium, heart and nervous system much excited, pupils widely dilated, with dryness of the fauces and throat, intense thirst, etc.

He would make sudden starts, and look wildly around as if labouring under some frightful hallucination, so that it required at times two or three stout men to hold him on the bed. After observing him narrowly for a few moments, I concluded that he was labouring under the influence of some powerful narcotic poison, probably self-administered, as his habits were known to be somewhat irregular. It was evidently a *deliriant* narcotic, and, therefore, probably either belladonna, hyoscyamus, or stramonium.

I attempted during an interval of calm to administer an emetic of ipecac, but he immediately spit it *out*.

I then at once applied chloroform to his nose, to the influence of which he appeared remarkably susceptible, requiring only a moment to anæsthetize him.

A vial was found on the floor of his room, indicating at what drug store it had been obtained, and which contained about half a drachm of a dark, thick liquid, which I soon ascertained to be Fd. Ext. Belladonna.

Having no stomach pump at hand, but remembering to have seen the account of the experiments of Dr. S. Weir Mitchell and others, "On the Antagonism of Atropia and Morphia" (*Am. Journ. Med. Sciences*, July, 1865), I at once concluded in this seemingly desperate case to give the tinct. of opium, which I did when he recovered from the anæsthesia, so that he could be induced to swallow liquids.

I administered about *four drachms* of tinct. opii within a space of thirty minutes, and found that I could dispense with the chloroform thenceforth, as he manifested decided symptoms of the influence of opium before I gave the last dose. He speedily quieted down into an opium slumber, and ere an hour from first dose of laudanum he was sleeping a deep narcotic sleep, which seemed for a moment to demand artificial respiration and stimulants, but neither were resorted to.

After about three hours of deep slumber, he began to manifest symptoms of returning consciousness (10 P. M.), called for water, of which he was given a mouthful every 20 or 30 minutes, circulation and breathing gradually grew better until about 2½ A. M., when he vomited about a pint of dark semifluid, mixed with partly digested food, after which his recovery was rapid, without any untoward symptoms, or any further treatment whatever.

On visiting him next morning he gave the following history of his case: During the forepart of the day of this occurrence, he had been suffering from headache, at 2 P. M. he ate, however, a pretty hearty meal, and in about three-fourths of an hour (the headache increasing) he consulted a "*doctor*," who prescribed as follows:—

"℞. Fd. Ext. Belladonna ℥j. Sig.—Take *ten* (10) drops every half hour until pain ceases."

He states, and his cousin corroborates his statement, that he took a dose then (2¾ P M.), and within the period elapsing until six P. M. that he took five doses, and not even dropping it out of the vial, but taking at first about half teaspoonful, and increasing to at least a teaspoonful at a dose, pouring it out carelessly into a beer glass, as he had no idea or caution as to the poisonous nature of the drug. Indeed, from the very best testimony, we can be sure that he took at least *four drachms of Tilden's Fd. Ext. Bellad. in a space* of three and one-quarter hours (last dose at 6 P. M., one hour before I saw him).

DOMESTIC INTELLIGENCE.

Salicylic Acid in Acute Rheumatism.—In the current number of the *Monthly Abstract of Medical Science*, page 107, will be found an article giving the results of this mode of treatment in Prof. Traube's hands. In the *Boston Medical and Surgical Journal* for Feb. 24, Dr. Charles P. Putnam records a case which is quite as striking as Traube's.

Alice B., five years old, was thoroughly chilled while skating on February 5th, and for several days after had a hot skin, a coated tongue, and no appetite. On the 9th she lay on the bed most of the day. On the 10th she remained in bed. On the 11th, in the morning, her pulse was 120, her temperature (axillary) 102.7°. In the evening, pulse 131, temperature 103.5°. During the latter part of this day she complained much of pain in the muscles of the thigh, in the groin, and in the ankles. She would not móve her lower extremities, and could be moved only with great pain. Skin dry. No swelling nor redness of any joints or of other parts of the body. On the 12th the general state was as before; pulse 120, temperature 103°. During the day the hands became painful and sensitive, and the knuckle-joint of the third right-hand finger was slightly swollen and rose-coloured.

On the 13th, pulse 130, temperature 102.7°. She had slept somewhat, with five grains of Dover's powder, but the pain and tenderness of the extremities had increased very much, so that the patient lay quite helpless, cried out when touched, and was moved only with the greatest difficulty. Most of the joints of the hands and feet, especially the joints between the first and second phalanges of the right hand and foot, were swollen and rose-coloured. Movement of the jaw also caused pain.

Salicylic acid was prescribed, five grains in wafers every hour when the patient was awake. The treatment was begun at two P. M., and eleven doses, making almost one drachm, had been given at ten A. M. next day. No tinnitus aurium was observed by the patient. After the first three doses there seemed to be some improvement, for though the physical appearances remained unchanged, the patient's spirits were better.

After the seventh dose she went to sleep, and was quiet most of the night, only waking often enough to take two more doses. In the morning she turned over in bed, moved the bedclothes with her hands, and wanted to be dressed.

On examination it was found that the redness had left all the joints; they could be moved without pain, and only a moderate œdematous swelling marked the affected parts. The patient complained only of slight itching of the hands and face.

At ten A. M., pulse 120, temperature 101.6°. At six P. M., pulse 124, temperature 102.4°. Five grains of salicylic acid were ordered every two hours during the night, but only three doses were given, as the patient seemed quite comfortable, and slept. On the 15th (forty-eight hours after treatment began) the temperature was 99.9°.

Bromide of Potassium in Saccharine Diabetes.—In one of the earlier numbers of the *American Practitioner*, Prof. Austin Flint reported three cases of diabetes mellitus treated by the bromide of potassium, and suggested to physicians to make trial of this agent "in order to determine whether it be not entitled to be classed with other remedies which are sometimes useful." Its usefulness seemed to be clearly manifested in one of the cases detailed by Dr. Flint.

An esteemed medical friend, Dr. Jas. Ely, of Milton, Ky., writes that he is now treating a case of saccharine diabetes with large doses of the bromide of potassium and tincture of digitalis. "I rely," he says, "on the potash salt to relieve pain and contract the capillary arterioles, and the digitalis to give tone to the heart and arteries, relieve the blood-stasis in the brain and spine, and thus prevent the dilatation of the arteries and the degeneration and decay that follow in the brain and spine. My patient is much better and has better use of his limbs, suffers no pain, has recovered his sexual appetite, while his skin has become moist and natural, but in spite of my injunctions he will sometimes disobey orders and eat farinaceous food, always to his injury."

It is to be hoped that the suggestion of Prof. Flint will be acted upon by other physicians, and the true therapeutic value of the bromide of potassium as a remedy in diabetes be determined. The suggestion of Dr. Ely to use the tincture of digitalis at the same time may be of some value also.—*American Practitioner*, Jan. 1876.

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Reported Death from Ether.—Dr. FINNEL presented to the New York Pathological Society (*New York Medical Journal*, Feb. 1876) the larynx of a patient who recently died at the Homœopathic Hospital while being operated on for the removal of a necrosed portion of the superior maxilla. The only abnormality noticed in the specimen was œdema of the larnyx. The history of the patient was, that he had suffered from necrosis of the maxilla, and it was determined to remove the sequestrum by operation. After having etherized the patient sufficiently, an incision was carried through the lip, and extended in a semicircular direction over the upper jaw. When the operation had proceeded thus far, the patient became cyanosed and died. It was suspected that blood had passed into the trachea, and to remedy this the patient was held up by his heels, but without effect. The time from commencing the administration of ether till death ensued was ten minutes. The amount of ether used was two and a quarter ounces. At the autopsy, no trace of blood could be discovered in the trachea. The heart was fatty, and weighed six ounces. No lesions could be discovered in any of the other viscera. A strong smell of ether was discoverable in the brain. The anæsthetic employed was the purified ether manufactured by Dr. Squibb.

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Sphygmograph.—The *New York Medical Journal* for January, 1876, contains a description, by Dr. A. T. KEYT, of an instrument, devised by him, adapted as a "sphygmograph, sphygmometer, cardiograph, cardiometer, and to other uses." It is founded on the same principle as the sphygmometer invented by Dr. Herrison, and a description of which was read before the Academy of Sciences of Paris some forty years since, and of the sphygmoscope of Dr. Scott Alison, an account of which is published in the Proceedings of the Royal Society for Jan. 1856, and of that of Dr. E. A. Pond, of Rutland, Vt., exhibited to the Suffolk District Medical Society, Nov. 27, 1875.

The mechanism by which the pulsations of the arteries and heart are exhibited by tracings is different from that of Marey's instrument, and seems to be ingenious.

Time and further experiments with the instrument will be required to demonstrate the superiority claimed for it over Marey's and Holden's instruments.

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Pennsylvania State Board of Health.—An act has been passed by the Senate of Pennsylvania, and is now before the House of Representatives, for the creation of a State Board of Health, to consist of five physicians, to be appointed by the governor. The duties required of them are *onerous*, and they are to receive *no salary*, but the actual personal expenses of any member while engaged in the duties of the Board shall be allowed and paid. Eight thousand dollars are appropriated for the purposes of this act and the expenditures properly incurred.

The provisions of this act do not seem to us to be very promising of useful results. Gratuitous labour is rarely well performed, and to require services of physicians that would not be demanded of any other class of citizens is altogether unjust and unworthy of a rich State. It is also to be feared, that, as the appointment of the members of the Board rests with the Governor, political influence rather than merit will govern the choice.

OBITUARY RECORD.—Died, suddenly, in New York, on the 2d of January, in the 67th year of his age, JOHN R. VAN KLEEK, an esteemed physician of that city.

—— Suddenly, Jan. 20, 1875, at Oakland, Cal., Dr. E. LEE JONES, President of the Alameda County Medical Association, for many years an honored and influential practitioner of the city of New York.

—— At Sacramento, Cal., Feb. 13, THOMAS M. LOGAN, M.D., Secretary of the State Board of Health, and late President of the American Medical Association.

FOREIGN INTELLIGENCE.

A Remarkable Case of Aneurism.—On the 25th Jan. last, Mr. OLIVER PEMBERTON, of Birmingham, tied the external iliac artery in a case presenting features of unusual occurrence and interest. The patient, a country gentleman of forty-seven, had led a life of great activity, especially in horse exercise; had been syphilitic, but was otherwise vigorous and healthy. Six months previously an aneurism formed in the left popliteal region; shortly after a second, at the apex of Scarpa's space; and when seen (Jan. 11th) by Mr. Pemberton, there was a third under Poupart's ligament, all being in the same limb. The lower tumours were as large as the closed hand, and the upper the size of a goose-egg. The artery was secured about an inch from the bifurcation by an antiseptic ligature—which Professor Lister specially prepared by a new method which he has just devised, and which, as soon as he has perfected its details, he intends to bring before the notice of the profession. The immediate result of the operation was that all pulsation ceased in three aneurisms, and has never returned (nine days having now elapsed). The patient is well, the pulse having never exceeded 84, and the wound without disturbance under antiseptic dressings.

It need hardly be said that the all-important question here was, to what extent would the collateral circulation be established? How much of the limb could be preserved from gangrene? Let the position of affairs for a moment be reviewed. The main artery, extending from the seat of ligature below the bifurcation of the common iliac to a little above the origin of the anterior and posterior tibials, arrested, *at four distinct points*, by absolute barriers to circulation —*by one ligature* and three solid aneurisms! Despite these difficulties the existing conditions seem to assure the preservation of the limb to about the middle third of the leg, a marvellous instance of what collateral circulation can do when tried to its uttermost.—*Lancet*, Feb. 5, 1876.

Anæsthetics in the London Hospitals.—From a report on this subject published in the *British Medical Journal* (December 25, 1875), we learn that at St. Bartholomew's Hospital, ether, chloroform, and nitrous oxide gas are used; ether preceded by nitrous oxide gas is used in by far the greater number of cases. Chloroform is used for very young children, and in operations about the mouth and nose which are likely to last some time. Nitrous oxide gas is employed for short operations, such as extraction of a tooth or opening an abscess. Nitrous oxide gas and ether are administered by means of Mr. Clover's apparatus, which is admirably adapted for that purpose. Until January, 1875, chloroform was used, says Mr. Mills (chloroformist to the Hospital), for nearly all cases; but I found that, while chloroform frequently depresses the heart's action in long operations, ether stimulates it. It rarely happens that there is any persistent sickness after the inhalation of ether; I have met with but one instance in nearly nine hundred administrations, and in that case it lasted about twelve hours, at the expiration of which time the patient was able to take food well. Ether does not appear to be much less likely to cause vomiting at the time of the operation than chloroform, but it certainly causes much less after-sickness. Chloroform is used in long operations about the mouth and nose, because: 1. The narcosis of chloroform lasts longer than that of ether; 2. In many operations, as for cleft palate or removal of the tongue, it is necessary to keep a gag in the mouth, which comes very much in the way of a face-piece, such as is necessary for the administration of ether; while chloroform can very conveniently be given on a piece of lint; 3. In operations for cleft palate, too, there is another objection to the use of ether, in the fact that it excites a flow of viscid saliva, and is apt to induce coughing. In delicate operations about the eye, I prefer chloroform, as it causes less congestion. In cases of fracture which require an anæsthetic whilst the parts are being placed in apposition during the time the muscles are relaxed, chloroform is preferable, because patients recover from its effects quietly, the inhalation of ether being generally followed by a state of noisy delirium and struggling, which would be likely to displace the fractured ends and necessitate their readjustment.

At Guy's, chloroform is the anæsthetic which is almost invariably used.

At the London Hospital ether has been chiefly employed since 1872. Since the introduction of ether the hospital has not contained any case in which death has resulted from its use nor during its administration.

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Comparison of the relative safety of Ether and Chloroform.—Dr. A. D. VALLETTE, in his "*Clinique Chirurgicale de l'Hotel-Dieu de Lyon*," devotes a lecture to this subject, in which he pronounces unhesitatingly in favour of the former. He does not deny that deaths occasionally occur under the influence of ether; but in the cases he has been able to collect, there is a remarkable difference between these and the similar accidents from chloroform. A large number of the fatal cases under chloroform have occurred when the anæsthetic was being administered to a patient apparently in good health, and suffering from some trivial local malady. On the other hand, those occurring under ether have always been in cases of the gravest character, and in which the patient was either exhausted by previous disease, or suffering from the shock of some severe injury. Again, he points out that death, when resulting from the effects of ether, has always been preceded by warning symptoms; whereas with chloroform it has often been sudden, and utterly without warning of any kind. He tells a somewhat amusing tale of Bonnet, relating to this subject. Bonnet, although he had lost several patients from chloroform, persisted in continuing its use on account of its greater convenience. At last, he himself wished to have some anæsthetic during the extraction of a tooth. When seated in the chair, ready for the operation, the dentist asked him, "What do you say, M. Bonnet; shall we use ether or chloroform?" He reflected a moment, and then replied, "Use ether." "From that day chloroform was banished from his wards in the hospital, and from his practice in the city."—*Brit. and For. Med.-Chirurg. Rev.*, Jan. 1876.

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Ether and Chloroform in Vivisections.—Prof. SCHIFF, of Florence, in his account of the plan pursued in his experiments on living animals, gives numerous reasons for preferring ether to chloroform, and states that etherization, carried to the last grade of insensibility, never becomes dangerous to life as long as the movements of respiration are maintained. Even when the inhalation of ether is carried further, and death appears to have supervened, life may be restored if, at the moment of the paralysis of the thoracic walls, a species of artificial respiration is immediately commenced. His experience has proved that in more than 3000 cases, in which ether was employed with the intention of preserving the life of the animals, and with the adoption of the necessary precautions, there was not a single case of death. Chloroform, on the other hand, destroyed a considerable number of animals when he wished to push the anæsthesia to the penultimate grade, that is to say, until the contraction of the diaphragm became so weak that an aperture in the abdominal cavity no longer caused a prolapse of the intestine. He had assured himself that in etherization the pressure of the vessels is maintained at a height which is almost normal, and always compatible with the continuance of life, even after the cessation of the automatic respiration, and he has ascertained by the manometer that the sanguineous pressure is raised before the moment of death. On the contrary, in the case of chloroform, it has been found by the manometer that under similar circumstances the pressure of the blood is lowered before the automatic respiration has ceased, and the pulse has been often seen to disappear almost entirely in the manometer, the pressure of which fell to twenty-five or thirty millimetres while the animal was still breathing by its own efforts. Dr. Schiff thinks that chloroform ought to be banished from practice as an anæsthetic, except in cases where there is an extraordinary resistance to the effects of ether, and even then it might be allowable to mix a little chloroform with the ether, and to commence the anæsthesia, which may afterwards be continued with pure ether.—*Brit. and For. Med.-Chirurg. Rev.*, Jan. 1876.

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Sudden Death during an Operation in which Chloroform was administered.—On the 22d of January last, a death occurred in the operation theatre of Dr. Steevens's Hospital under somewhat peculiar circumstances. A young man, about 23 years of age, came to the hospital with a crop of venereal warts and chronic phimosis. Circumcision was decided upon, and, as the operation was a comparatively trifling one, he was advised to bear the pain without having recourse to anæsthetics. He, however, urgently requested to be put under the influence of chloroform. Accordingly, after the heart had been duly examined, and its sounds discovered to be normal, the operation commenced. The radial and temporal pulses were both full and strong, and all went on satisfactorily till suddenly, without a moment's warning, the countenance became livid and the circulation stopped. The operation was at once suspended, and artificial respiration was at once had recourse to, and kept up for more than an hour. Galvanism, cold affusion, strong solution of ammonia, and other restoratives, were all tried, but without avail. The man never recovered consciousness. The quantity of chloroform used was small, scarcely amounting to two drachms and a half, and none had been administered for upwards of a minute before the fatal symptoms appeared. An inquest was held on the body on Monday, the 24th, and evidence was given as to the cause of death. The jury returned a verdict to the effect that the man had died while under the effect of chloroform administered to him at his own request. They, at the same time, entirely exonerated the hospital staff from any blame in the matter, as every due precaution had been taken, and the anæsthetic administered with the greatest care.—*Brit. Med. Journ.*, Jan. 29, 1876.

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Chloroform Syncope.—The *Revue de Thérapeutique Médico-Chirurgicale* for Oct. 1875 records a case of suspended animation in a child aged 6, due to the administration of chloroform. The heart had ceased to act, respiration was suspended, and the *facies* was cadaveric. The child was suspended by the feet, head hanging downwards, and artificial respiration was performed by pressure on the thorax. After a minute of suspension and a dozen efforts at compression of the chest, the colour began to return; a movement of vomiting caused the expulsion of some viscid glairy matter, and presently animation was restored.—*Brit. Med. Journ.*, Jan. 1, 1876.

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Death from Chloral.—Another death is reported from the reckless taking of chloral privately. In this case the victim was a lady of about thirty-five, who resided with her step-father at Exeter. She had, it is said, been in the habit for two years past of taking chloral "to soothe pains in the stomach," and had been repeatedly found lying on the floor in an unconscious state from its effects. The preparation she usually took was that known as "Hunter's solution of chloral," which has been ascertained to contain twenty-five grains of chloral to the drachm, and each bottle contained 300 grains. It is calculated that the deceased took 125 grains within two hours. It is futile to caution those who are in the habit of taking sedative narcotic preparations of the risk of doing so except under medical supervision; the only plan likely to succeed is to place heavy restrictions on their sale.—*Med. Times and Gaz.*, Jan. 15, 1876.

An Improved Method of Dectecting Sugar in the Urine.—In the new edition of his work on Diabetes, Dr. J. SEEGEN recommends a modification of Trommer's test, which consists in filtering the suspected urine two or three times through animal charcoal, and then washing out the latter with a very little distilled water. To this wash-water Trommer's test is applied in the usual way. Very small quantities of sugar can be detected with certainty thus, for the wash-water is generally as sensitive to the test as an aqueous saccharine solution—that is, much more sensitive than the corresponding urine, in which the reaction of the sugar is impaired by the presence of other constituents.—*Med. Times and Gaz.*, Nov. 6, 1875.

A Remarkable Birth.—The *Allgemeine Medicinische Central Zeitung* quotes the following remarkable case from Warsaw. At the railway station of Woloschin, the duties of signaller were performed by a woman, who was in an advanced stage of pregnancy. About five o'clock on the morning of November 24th, a train was approaching, and the woman went on the line to make the signals. She was probably seized with labour-pains as the train approached; for, a few hours later, some labourers found her body literally cut in two, the upper part being completely smashed, while in the sand at the side of the rails lay a child, living and crying, but quite uninjured. At the examination, it was decided that the birth of the child must have taken place after the death of the mother or while she was dying.—*Brit. Med. Journ.*, Jan. 8, 1876.

The Force of Imagination.—Incidentally we may gather from time to time curiously valuable evidence of the worthlessness of subjective evidence respecting mysterious agencies. The *Students' Journal* lately published some ward notes of the impressions which patients occasionally derive from the use of the clinical thermometer. A young woman who was convalescent, and whose temperature had long remained normal, had a slight relapse, which she attributed to having had "no glass under her arm for a week." A man suffering from acute rheumatism, obstinately refused to have his temperature taken any more, saying "it took too much out of him; it was a drawing all his strength away." A man had been in the habit for some time of having his temperature taken daily under his tongue, with a thermometer that had just been doing severe duty in the axillæ of other patients. One night a bran new thermometer was applied to his mouth; next day he declared he was not so well, and said, "the glass was not so strong as usual; he felt at the time the taste was different, and it had not done him so much good." A sister in one of the woman's wards says, that many of the patients think the thermometers are used to detect breaches of the rule against having unauthorized edibles brought in by friends; and she, accordingly, does not disabuse their minds of their innocent superstition. These "impressions" are precisely the sort of evidence on which "metallic tractors," galvanic belts, mesmerists, and animal magnetisers rely for their vogue.—*Brit. Med. Journ.*, Jan. 29, 1876.

Medical Statistics of Prussia.—According to the official reports, in 1874 the number of births was 1,051,806, of which 542,640 were males. Of the whole number of births 975,337 were legitimate, and 76,466 illegitimate. The number of twin births was 12,714, of triple 119, of quadruple 1.

The number of marriages was 244,773. The number of deaths during that year was 692,907, of which 364,547 were males.

The number of suicides was 3075, of which 2527 were males.—*Le Progrès Médicale*, 20th Nov. 1875.

OBITUARY RECORD.—Died, in London, of pneumonia, Jan. 23, aged 46, GEORGE GREENE GASCOYEN, F.R.C.S., Surgeon to the Locke and St. Mary's Hospitals.

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Dr. Smith's Diseases of Children is certainly the most valuable work on the subjects treated that the practitioner can provide himself with. It is fully abreast with every advance: it should be in the hands of practitioners generally, while, because of the conciseness and clearness of style of the writing of the author, every professor of diseases of children, if he has not already done so, should adopt this as his text-book.—*Va. Med. Monthly*, Feb. 1876.

In presenting this deservedly popular treatise for the third time to the profession, Dr. Smith has given it a careful preparation, which will make it of decided superiority to either of the former editions. The position of the author, as physician and consultant to several large children's hospitals in New York city, has furnished him with constant occasions to put his treatment to test, and his work has at once that practical and thoughtful tone which is a marked characteristic of the best productions of the American medical press.—*Med. and Surg. Reporter*, Feb. 1876

We can cordially recommend the work to students and practitioners as one of the very best with which we are acquainted.—*Cincin. Med. News*, Feb. 1876.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on Pleuritic Effusion. Delivered at the Liverpool Royal Infirmary by A. T. H. Waters, M.D., Physician to the Infirmary.

Gentlemen: I wish to call your attention to-day to some cases of pleuritic effusion which have been in my wards, and to make them the subjects of some remarks on the affection. I shall confine myself for the most part to those points which I consider of the greatest practical importance, and first I will refer to the subject of diagnosis.

It may, perhaps, appear to you to be very easy to diagnose the existence of fluid in the pleural cavity—to differentiate between liquid and solid matter within the cavity of the chest; and yet it is in some cases by no means so. I have known physicians of great practical experience mistake a solid lung for pleuritic effusion, and pleuritic effusion for a solid lung, and I have not been myself altogether free from such errors. There is, indeed, no single sign which invariably exists by which pleuritic effusion can in all cases be certainly diagnosed, and it is undoubtedly true that the characteristics of its presence on which we mainly rely may and often do lead us into error.

Let me say a few words in reference to the evidence we derive of the existence of effusion from *percussion.* It is obvious

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that any solid or liquid in the chest will give rise to dulness on percussion; and it can only be by the character of the dulness, or its shifting nature, that we can say that it depends in any case on pleuritic effusion. Undoubtedly there is usually—indeed in the great majority of cases—a profound character about the dulness which can scarcely be mistaken; but there are exceptional cases of extreme dulness without any effusion. You may recollect the case of B—, in No. 10 ward, who came to us with a history of pleurisy, and in whom we found dulness of a very leaden character over the whole of the left side, extending up to the clavicle, and passing to the extreme right of the sternum. The breath-sounds were absent below, and only heard faintly at the upper part of the chest; moreover there was absence of vocal vibration, and heart-sounds were faint and best heard to the right of the sternum. The presumption that pleuritic effusion existed was very strong, and it was thought desirable to ascertain the fact, so that if fluid were present some of it might be drawn off, and thus the urgency of the symptoms be relieved. A fine canula was accordingly introduced, and the aspirator was used, with the result, however, of drawing off only a few drops of blood. Not satisfied with one exploration, I subsequently repunctured the chest at a different spot, but the result was the same. The progress of the case showed its nature, faint crepitation was heard after a time, and death revealed to us the actual condition of the lung. It was more or less solidified throughout, and universally adherent to the chest-walls; the pleuræ were greatly thickened; and there were strumous deposits in the anterior mediastinum. These deposits had caused the dulness, which extended to the right margin of the sternum, producing thus a sign which, taken with the other signs, I had never previously met with in any lung disease except pleuritic effusion and cancer.

Again in reference to the shifting nature of the dulness, you must not, in diagnosing pleuritic effusion, depend too much on the fact, which I have often demonstrated in the wards, that the line of dulness varies according to the position of the patient. If the lung is perfectly free from adhesions, the fluid in the chest will gravitate to its lowest part, and the upper line of dulness will vary according as the patient is sitting or lying; but some of you will recollect the case of the woman in No. 15 ward in whom we had marked dulness, with absence of breath-sounds, in front of the left lung reaching to the level of the second rib, with resonance at the back extending even below the angle of the scapula, and from whom we drew off, at the time these signs were present, a large quantity of pus.

Auscultation often affords valuable aid in the diagnosis of pleuritic effusion. Speaking generally, the breath-sounds are usually either absent or faint over the seat of effusion, but they may be also absent over an intensely solidified lung, or over one which is less solidified but adherent by very dense pleuræ to the chest-walls, just as was the case in B—, to whom I have referred. Again the breath-sounds may be very loud, simulating those of a solidified lung, when there is a large pleuritic effusion. There was a woman under the care of my colleague, Dr. Glynn, some time ago, in whom loud bronchial breathing was heard, both over the front and back of the right lung, where there was marked dulness, and yet, as was subsequently proved, a very large quantity of fluid existed in the pleural cavity. In children, again, the phenomena of bronchial breathing and bronchophony are often present, although the effusion may be great, and I have met with other instances besides the one I have alluded to where loud breathing has been heard in adults. Moreover, you must not forget that in old-standing cases of effusion the sound lung takes on increased action, the breath-sounds become puerile, and may sometimes be heard on the opposite side of the chest.

But to take another sign to which great importance is very properly attached. In pleuritic effusion it is undoubtedly true that *vocal vibration* is generally absent; that when the hand is placed on the chest whilst the patient speaks, no thrill is communicated to it; and yet I have sometimes felt a well-marked vibration over a chest from which I have immediately afterwards removed a large quantity of fluid. Some of you may recollect the case of A—, in No. 10 ward, who was the subject of empyema. In that case I pointed out to an assembled class that we had most of the signs of pleuritic effusion well warked—viz., leaden dulness, absence of breath-sounds, etc. The man had been previously tapped, and a considerable quantity of fluid had been withdrawn. We had watched the gradual reaccumulation of the fluid, and the time had come when I resolved to retap. Over the affected side—over the seat of leaden dulness, and where the breath-sounds could not be heard—there was distinct, well-marked vocal fremitus. An aspirator-tube was introduced, and we drew off ninety ounces of pus.

I removed, some time ago, two pints of serous fluid from the chest of a man in whom vocal vibration was distinctly perceptible, except at the extreme base of the lung—perceptible where there was marked dulness from the presence of fluid.

Again, there was the case of the woman McK——, in No. 15 ward, who was admitted with pleuritic effusion, and was tapped several times. Before the first tapping you may recollect that there was distinct vocal vibration at the lower and back part of the affected side of the chest. I removed twenty-five ounces of fluid. Strange to say, we never had any return of the vibration throughout the progress of the case. The fluid collected and re-collected, and we removed it on three or four occasions.

I think that possibly we may account for the persistence of vocal fremitus in some of these cases of pleuritic effusion by the existence of adhesions of the lung to some parts of the chest-wall.

Whenever pleuritic effusion is great there is *displacement of viscera*. The heart is often found beating to the right of the sternum when the effusion is on the left side, and this displacement is great where the effusion has been rapid. There are also displacements from the diaphragm being pushed down. But, independently of the fact that displacements may be due to the presence of solid matter in the chest, it frequently happens that although there is a good deal of fluid in the pleura, there is but little visceral displacement. In the first place the heart may be so connected with the chest-walls by adhesion that it cannot be displaced except to a slight extent; and, further, in the more chronic cases, the lung yields to the pressure of the fluid, collapses, and thus leaves a large space for the fluid. The displacement of viscera may therefore be much less than you would expect from the quantity of fluid which, after operation, you find has existed.

Again, you must not always expect to meet with any decided increase in *the size of the affected side*, or a *bulging of the intercostal spaces*. Setting aside the fact that measurements are not always trustworthy, it is undoubtedly true that in adults effusion may be very great and yet there may be no increase, as shown by the tape, in the size of the affected side, as compared with the opposite one. In the more yielding chests of children it is otherwise, and a notable increase is more frequently met with. Doubtless in most cases, if you watch them from the beginning, having taken the measurement before effusion, you will find an increase in the size of the affected side. But what I wish to impress on you is this, that in the more chronic cases the side of the effusion often measures less than the opposite side. As an instance, there is the case which you have seen in No. 10 ward. In this man, who was the subject of extensive empyema of the left side, the measurements before tapping were as follows: Right side, 1 ft. 5¾ in.; left side, 1 ft. 5 in. We drew off 58 oz. of pus from the left pleural cavity.

Now it is very probable that the measurements of the left side were greater than in health, before the effusion took place; but the left lung being crippled, the right had taken on increased action, and had distended that side of the chest beyond the normal.

Further, although the intercostal spaces are at times altered in their appearance, becoming more or less convex, yet extensive effusion may exist in adults without any such change taking place.

It is scarcely necessary for me to allude to *œgophony* as a sign of pleuritic effusion. I look upon it as a mere fancy sign, being generally absent when there is any difficulty of diagnosis.

I have thus endeavoured to deal with some of the difficulties which you may meet with in the diagnosis of pleuritic effusion, and whilst I admit that in the majority of cases the diagnosis is easy, I venture to say that in others it is very difficult; indeed, I think in some instances it is impossible to say positively whether fluid is present without making an exploratory puncture, and in all cases of doubt, where the propriety of tapping the chest is in question, no decided opinion should be pronounced until a fine aspirator-tube has been introduced. But I must say a few words about this preliminary exploration. Simple as it may appear, easily as it is accomplished, and usually attended in hospital practice with but little trouble, it is far less simple amongst private patients. It becomes, in fact, magnified into an "operation," and should no fluid be withdrawn the confidence of the patient is not increased in the physician. Therefore it is well to weigh carefully every feature of a case before introducing even the finest canula. I believe, however, that no harm is done by the use of these tubes, even if a solid lung, or solid tumour, or even a healthy viscus is punctured. You need not therefore be under any apprehension on that score.

But I must tell you that when there is a good deal of fluid in the pleura, one or even two punctures may fail to withdraw any of it. You may possibly puncture at a spot where there are adhesions; and, again, you may find that even when there is a pure serous effusion, such as you would think ought to flow through a fine canula, nothing will follow the introduction of the tube unless the exhausting syringe is used. I had under my care a man who, having had empyema of the right side, had symptoms of pleurisy on the left. On examination I diagnosed the existence of effusion. I introduced a fine aspirator-canula, and I felt that I had passed the instrument into a cavity, but no fluid oozed out. I withdrew the canula to see if it was plugged, but it was free. I reintroduced it, but still there was no fluid. The aspirator was applied, and twenty ounces of clear serum were drawn off. Sometimes from the extreme thickness of the thoracic walls it is neccessary to pass the canula very deeply before you feel that you have reached the cavity of the pleura. You may recollect the case of the man N—— who was under my care in No. 10 ward. He had been previously tapped for empyema, and he had the signs of a re-collection of the fluid. I introduced a canula into the back of the chest. I felt the instrument entering a soft substance after having passed some distance through the chest-walls. I moved the canula about, but clearly it was not in the pleural cavity. Had I made a mistake? Had I punctured a solid lung? The canula was already buried nearly two inches in the chest-walls. I pushed it further, and had the satisfaction of finding that it entered a cavity. I drew off forty-five ounces of thick pus. When you puncture the chest, if nothing but blood or bloody matter exude, it is well to examine the contents of the canula under the microscope, for such examination may enable you to differentiate between a cancerous and some other tumour. At the same time, it must be borne in mind that a cancerous lung may be punctured half a dozen times without a cancerous portion being reached, and cancer may exist although only blood is drawn off.

What I have said as to the non-passage of fluid through a canula will teach you not to trust to the mere introduction of a grooved needle as a means of diagnosis, Some physicans use the small syringe employed for hypodermic injections.

I must now pass on to say a few words about the treatment of pleuritic effusions. and my remarks will be confined chiefly to those effusions which are more or less chronic. As a matter of fact, acute primary pleurisy is a rare disease. Pleuritic inflammation is usually connected with some constitutional state, some constitutional vice, and is more or less secondary. In reference to the more chronic cases, the treatment I have found most useful for promoting absorption of the fluid is the internal administration of iodide of potassium with tonics, bark, etc. Iodide of iron or the tincture of the perchloride of iron may sometimes be given advantageously, and counter-irritation should be used. I prefer for this the application of iodine rather than blistering, but blistering is often useful. I recommend you, however, not to blister severely. I have seen very extensive effusions which had lasted for many weeks—even months—removed by this kind of treatment, and it is well, unless certain urgent symptoms are present, to give constitutional measures a fair trial before resorting to tapping. I must tell you that I have no faith in the powers of mercury to produce absorption of these effusions, and I am not in the habit of prescribing it. I think it is important to keep up the strength of patients, for there is a far greater probability of the fluid being absorbed when they are strong than when they are weak, and therefore good diet should be given with tonics, and even wine, whilst the special remedies are administered.

The last points I wish to refer to are the propriety of tapping in these affections, and the period when the operation should be resorted to.

There can be no doubt that many cases of extensive pleuritic effusion have been lost from the operation of tapping having been either too long delayed or not performed. When the effusion is great there is danger of fatal syncope or fatal dyspnœa, and one or other of these may occur, although there does not appear to be any serious interference with the breathing, especially if the patient is somewhat advanced in years or debilitated. The danger of delay is well illustrated by many cases recorded by Trousseau and others. Let me refer to one. A patient was under my care some years ago in the Northern Hospital, with pleuritic effusion. I was trying general measures, intending to tap in a day or two if there were no improvement. One morning the man was seized with a sudden attack of syncope and died. A large quantity of fluid was found in the chest.

Now as to the time at which you should tap in pleuritic effusions. I think you should tap in all cases, *of whatever duration*, whether acute or chronic, where the accumulation of fluid seriously compromises respiration, and especially if there have been any sudden attacks of dyspnœa. Again, wherever an extensive effusion has lasted some weeks, and shows no signs of diminution from general treatment, tapping should be resorted to whether dyspnœa is present or not. It is not necessary to remove the whole of the fluid, indeed it is better not to do so if the effusion is large, for reasons which I will mention presently. The removal of a portion of the fluid usually has the desired effect, and seems to stimulate the process of absorption of the remainder, and to cause the general measures to act with greater success. There is one rule you should always observe. You will find that patients, after a certain amount of fluid has been withdrawn, will often complain of a sensation of constriction across the chest or epigastrium, or of pain. Under either of these circumstances the operation should be at once stopped.

As regards the site for tapping I prefer, under ordinary circumstances, that recommended by Bowditch. The rule is to find the inferior limit of the sound lung behind, and to tap two inches higher than this on the pleuritic side, in a line perpendicular from the inferior angle of the scapula.

With ordinary care, and especially by using the aspirator, no air need enter the chest in the operation.

I have never in my own practice, and I have now tapped many times, seen any bad results from the operation, and this is the general experience; but still some instances are recorded where death has followed very soon after tapping, probably either from syncope or from the presence of clots in the pulmonary vessels. One such case occurred in this hospital. A considerable quantity of serous fluid had been drawn off from a man, and he was left apparently well.

In the course of about half an hour, however, he was dead. Whilst therefore I consider the operation essentially safe, it is well to bear in mind that it is not always unattended with danger; and in order to avoid as much as possible all risks, I advise you to draw off the fluid, especially when it is serous, by a small canula, and not to take away too much at once; rather, in fact, to repeat the operation, if necessary, than disturb too much the existing relations of the lung.

In the treatment of empyema there are two methods which you may adopt. First, the treatment by constant drainage through a tube introduced into the chest; and secondly, the treatment by repeated tappings. I have seen both these methods succeed, but I must defer the consideration of this subject to another lecture.—*Lancet*, Feb. 5, 1876.

HOSPITAL NOTES AND GLEANINGS.

Belladonna Poisoning treated by Jaborandi.—In some cases of belladonna poisoning that were recently treated in the University College Hospital, opportunities presented themselves for testing the action of jaborandi on persons profoundly under the influence of belladonna. As is now well known, jaborandi in a healthy person produces copious perspiration and profuse salivation, contraction of the pupil and approximation of distant vision; whereas the action of belladonna, as far as these sets of symptoms are concerned, is quite opposite. After a poisonous dose of belladonna the skin becomes dry and flushed, the throat and mouth feel parched, the pupils dilate, and the near point of distinct vision is removed further from the eye. By the following notes it may be seen that while the patients were under the influence of belladonna the physiological action of jaborandi could not be produced by even very large, and what under normal conditions would have been dangerous, doses of the drug. Belladonna seems to be more powerful and intense in its action than jaborandi. A patient in the same ward as the undermentioned case was made to sweat and salivate profusely by the subcutaneous administration of one-third of a grain of pilocarpine. One-hundredth of a grain of atropia was then injected under the skin, and in five minutes both the sweating and salivation had almost entirely ceased. After the belladonna had been eliminated from the patients whose cases are recorded below, jaborandi was found to have its ordinary effect.

The following case is interesting on account of the prolonged delirium, the muscular rigidity, and the late occurrence of the bladder symptom.

John C——, aged sixty-four, on Dec. 24th, at about 12.30, drank, by mistake, about one or two drachms of belladonna liniment. Shortly afterwards, on his wife's return home, he said, "I have taken some stuff out of that bottle," and then became insensible, with rigidity of the body and clenched teeth. He was taken to the hospital at 1.30, and was treated by Mr. Houghton in the outpatients' room. The patient's arms, and especially his legs, were rigid, so that he was with difficulty kept in his chair; the pupils were dilated. He could not answer questions, though he seemed to understand them.

Mr. Houghton used the stomach-pump, and injected by it three drachms of ipecacuanha wine, and afterwards gave one-third of a grain of pilocarpine hypodermically. At 2.50, two hours and twenty minutes after the poisoning, he was admitted into Ward 4. The patient was quite unconscious, breathing with a loud snoring noise, but without puffing out the cheeks; the skin, lips, and mouth were dry. Pulse 104; respiration 22; and the pupils rather more than two-thirds dilated. Three hours and twenty minutes after the accident the pupils were rather less dilated, and since the previous note contractions and twitchings of both arms had occurred, the fingers being clenched by tonic contractions of the muscles, and the elbows rigid. In eight hours and a half he became slightly conscious. The legs were rigid from tonic contraction of the muscles. In ten hours and a half unconsciousness began to give way to fussy, busy delirium. He constantly muttered, kept picking the bedclothes, and tried to get out of bed. He stared wildly about him, and was very suspicious. His skin, mouth, and tongue were still very dry. He continued delirious, but not violently, all that night and the next day.

On the night of the 25th, thirty-six hours after the poisoning, he became so very violent that it became necessary to tie him down in bed. He stared wildly about him, struggled to get out of bed, shouted at the top of his voice, "Police!" "Murder!" and suffered from various hallucinations, thinking he was in prison, or was about to be murdered. He was very suspicious, refusing to take food, thinking it was poison. In fact, the delirium was exactly like that of delirium tremens, and as the man, at intervals of three weeks or a month, had drunk rather hard, it was impossible to say whether the delirium was due to belladonna or to the effects of alcohol.

The delirium continued violent during the third day, so that he was put into the strait-jacket. He continued in the same state during the night, so that at 2 A. M. one-fourth of a grain of morphia was injected hypodermically.

On the fourth day he was still delirious, but the strait-jacket was removed, and twenty grains of bromide of potassium, with thirty grains of chloral, were given in a pint of stout. He soon fell asleep, and awoke in the evening free from delirium, and then for the first time complained of urgent desire to pass water, being able to pass only a few drops at a time. This continued throughout the night and the fifth day. There was no retention. He slept soundly on the fourth night, and was quite well next day.

Throughout this case there was no rash; the pupils were rather widely dilated, but much less so than is usual in a severe case of belladonna poisoning.

This patient was treated with pilocarpine, the alkaloid of jaborandi, which in so many ways is the antagonist of belladonna. At 2.15 one-third of a grain was injected hypodermically; this was repeated at 3.15, at 3.50, and at 5 o'clock, so that one grain and a third was injected hypodermically within two hours and forty-five minutes, yet without any apparent effect on the symptoms. For a few seconds after the third injection it was thought that the skin became a little moister. However, the perspiration ceased almost immediately. In almost every instance one-third of a grain of pilocarpine induces in ten minutes to a quarter of an hour free prespiration and salivation, lasting often several hours. Four times that quantity was used without effect, affording a good example of the antagonism between atropia and pilocarpine. In order to test the specimen of pilocarpine, one-third of a grain was injected under the skin of another patient, and in a quarter of an hour he was bathed in perspiration and his mouth filled with saliva. Having tested the activity of the drug, and wishing to save the patient the annoyance arising from the salivation and perspiration, one-hundredth part of a grain of atropia was injected under the skin, and in five minutes the perspiration and salivation had almost ceased. To learn if the poisoned patient was less subject to pilocarpine than other persons, after his recovery one-third of a grain of pilocarpine was injected, and in twenty minutes his skin was drenched with perspiration. Although these two drugs are in so many ways antagonistic, in this instance any benefit arising from the pilocarpine could not be detected, but perhaps the good effect would have been apparent had larger doses been given or the medicine repeated more frequently. In this case well-marked rigidity occurred, a very unusual phenomenon in belladonna poisoning. Belladonna, as is well known, poisons the motor nerves, and thus causes weakness; but Dr. Fraser has experimentally shown that it is a stimulant to the spinal cord, but, owing to its paralyzing effects on the motor nerves, its tetanizing effects through its influence on the cord are not usually displayed. In frogs, after the effect on the motor nerves has passed away, the influence on the cord becomes apparent; moreover, if, previous to poisoning, one iliac artery is tied so as to protect the motor nerves of that limb from the poison, on irritating the animal tetanic contractions are excited in the protected limb. Were the attacks of rigidity which occurred in this patient due to the action of the belladonna on the cord?—*Lancet*, March 4, 1876.

Another case is related which we omit.

MEDICAL NEWS.

ORIGINAL ARTICLES.

Hemorrhage from Genital Organs in a child five days old. By A. H. PHILLIPS, M.D., of Saluda, Ind.

On the 7th of July, 1875, I attended Mrs. H., multipara, in labour. Delivery was natural and easy, vertex presenting. Stayed an hour or more, as some hemorrhage took place, caused by restlessness.

The child was a healthy looking female, weighing probably eight or nine pounds. There was no difficulty in securing the cord so that no blood escaped from it. At the end of the fifth day, I was sent for in haste, the messenger reporting that "the baby is bleeding." On my arrival (the distance from home being two miles) the hemorrhage had ceased, and I was informed that it came from the genital organs "just," as the mother said, "like a woman at her monthly period." Gave instructions to use lead lotion locally, should the hemorrhage recur.

About noon on the following day the father came to see me, saying that the hemorrhage had returned, and that the application did no good. As I had other engagements, I instructed him to give two or three drops of the medicine I had left for his wife (fl. ext. ergot), and also gave him persulph. iron to use locally. After using these the bleeding ceased and did not return. Was informed that the child had appeared hearty till on the ninth day (after birth). Had to be fed some, as the mother did not furnish a sufficient quantity of milk.

July 16th, I was summoned again, and on arrival found the child just coming out of a slight spasm, of which it had had several. Gave a minute quantity of calomel, guarded by a very little pulv. Doveri, as the bowels were reported constipated, and also potass. bromid.

No more convulsions occurred, and the child is to-day as hearty, apparently, as the average.

DOMESTIC INTELLIGENCE.

Disease of the Bladder Resembling Stone.—A man, aged fifty, came under the observation of Dr. POST, upon whom the diagnosis of stone in the bladder had been made. When the patient was examined with a steel sound, a sensation of roughness was communicated to the instrument, but no click could be discovered. A lithotrite was then introduced and a small calcareous fragment removed. It was then decided to introduce the hand into the rectum, and, although it was carried up as far as the wrist, no satisfactory aid to the diagnosis was obtained. Under the supposition that the case was one of encysted calculus, cystotomy was performed by means of the bilateral operation, but the mass could not be secured by the forceps. The finger could not be introduced to make an examination, from the depth of the perineum. For a week after the operation the patient did well and was very much relieved, but eventually sank and died.

At the autopsy it was found that there was malignant disease of the bladder. The surface of the cancerous mass was covered over with calcareous matter, and in this way the difficulty of making a diagnosis was accounted for.—*New York Med. Journ.*, March, 1876.

Botanical History of the so-called Damiana.—The Editor of the *Medical and Surgical Reporter* received from Mexico a quantity of this plant and placed it in the hands of Dr. J. T. ROTHROCK, of Wilkesbarre, Pa., for identification, who states (No. for March 4) that the shrub is the *Bigelovia veneta* of Prof. Asa Gray, and the last-named able botanist, to whom some of the specimens were transmitted, confirms this statement. Dr. R. asserts, that botanically the plant is well known.

As to the therapeutic properties which have been claimed for this plant, it will require more scientific and careful trials to decide what they may be.

Foreign Body in Œsophagus; sub-cutaneous injection of Apomorphia; body ejected.—Dr. Ed. T. Robinson, of Richmond, Va., relates (*Medical Record*, March 4) an interesting case of this. A boy, three years old, accidentally swallowed a biconcave shaped tin whistle, which lodged near the cardiac termination of the œsophagus. Dr. R. injected hypodermically into the child's arm one-twelfth of a grain of apomorphia, the child was placed on his belly, and in three minutes active vomiting was induced and the foreign body was ejected.

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National Medical Library.—We have just received a specimen fasciculus of a Catalogue of this library, heretofore known as "the Library of the Surgeon-General's Office." The specimen is of a combined catalogue of subjects and authors, arranged in dictionary order under a single alphabet, and has been prepared by Assistant Surgeon John S. Billings. A careful perusal of its pages cannot fail to impress the reader with admiration at the rare zeal and intelligence which have reared this National Library and propose to universalize its utility by this elaborate and comprehensive Catalogue.

To give the reader an idea of the magnitude of the Library and proposed Subject Catalogue, we have selected at random the word *abortion.* Under it we find references to 152 monographs and to 177 journal articles, besides cross-references to uterine hemorrhage, premature induced labour, disease of placenta, and to retained placenta; and under the *jurisprudence of abortion* there are additional references to 17 monographs and to 85 journal articles with cross-references to infanticide, and to poisoning by savine, in all 431 references, not including cross-references, to papers on this subject.

It will be at once seen that, to any who would successfully cultivate the field of medicine, the value of this Catalogue will be simply incalculable, and we are happy to learn that it is the intention of the authorities, if it be put in their power, to place this well-nigh indispensable work at the disposal of all

We are particularly anxious that our readers should be made acquainted with the value of this Library and of the proposed Catalogue, which will, beyond question, prove to be one of the most valuable contributions made by any government to any branch of science, inasmuch as the annual appropriation for its care and increase will shortly come before Congress.

While we commend stringent economy in the National expenditures, we are sure that its most earnest advocate must admit that this appropriation comes within that limit. The Catalogue of the Library attests the fidelity with which its portion of the appropriation in the past has been expended. To cut down this moderate sum would not only cripple the Library but would seriously retard the progress of the work on the Catalogue and impair its completeness.

We trust that the members of the profession will immediately use their personal influence with their Representatives and friends in Congress, in urging the propriety of maintaining the usual appropriation of ten thousand dollars to the Army Museum and Library.

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Medical Graduates in 1876.—

University of Pennsylvania	124
Jefferson Medical College (Phila.)	146
College of Physicians and Surgeons, New York	93
Bellevue Hospital Medical College	159
University of the City of New York	133
Washington University (Baltimore)	32
Medical College of Ohio	90
Cincinnati College of Med. and Surg.	27
University of Louisville	112
Louisville Medical College	86
Rush Med. College (Chicago)	77
Evansville Med. Coll. (Ind.)	8
University of Nashville and Vanderbilt University	63

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International Medical Congress, Philadelphia, 1876.—The Congress will be formally opened at noon on Monday, the 4th day of September, 1876, in the University of Pennsylvania, Philadelphia. The preliminary programme has just been published, and will be found in the current number of the *American Journal of the Medical Sciences.*

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American Medical Association.—The Twenty-seventh Annual Session of this Association will be held in Philadelphia on Tuesday, June 6, 1876.

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Medical Society of the State of Pennsylvania.—The next annual session of this Society will be held in the city of Philadelphia, on Wednesday, May 31, at 3 o'clock P. M.

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Delegates to the International Medical Congress, Philadelphia, 1876.—The Florida State Medical Society has appointed Drs. A. S. Baldwin and John P. Wall as its delegates to the Congress.

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OBITUARY RECORD.—Died, at Jacksonville, Fla., on the 11th of March, in the thirty-fourth year of his age, JOHN S. PARRY, M.D., of Philadelphia, Vice-President of the Obstetrical and of the Pathological Society of Philadelphia, and Obstetrician to the Philadelphia and to the Presbyterian Hospital.

Although cut off by the ravages of phthisis in the beginning of a highly honourable and useful career, Dr. Parry had already earned the reputation of being a careful and discriminating clinical observer, and an intelligent and zealous student. All the productions of his pen were based on clinical experience, and are characterized by originality of thought, unusually intelligent discernment, and an earnest desire for the advancement of the bounds of knowledge. Among the more important of his contributions to medical science may be mentioned a monograph on Extra-uterine Gestation based on an analysis of five hundred cases, published in the fall of 1875; his edition of Leishman's Midwifery, which is rendered particularly valuable by his observations on the forceps; his description of Diphtheria of Puerperal Wounds (*Am. Journ. of Med. Sci.*, Jan. 1875), based on the study of an epidemic which occurred in the Philadelphia Hospital; an elaborate study of Rickets (*Ibid.*, January and April, 1872); a carefully drawn up history of Relapsing Fever as it occurred in Philadelphia in 1869 and 1870 (*Ibid.*, Oct. 1870); and a valuable and original paper on the Use of the Hand to correct unfavourable Presentations and Positions of the Head during Labour (*Am. Journ. of Obstetrics*, May, 1875).

In his death Medicine has lost one of her most promising votaries, and his friends one whose private virtues endeared him to them and commended him to the esteem of all.

——, at Wilmington, Del., March 6, 1876, HENRY F. ASKEW, M.D., in the seventy-first year of his age. Dr. A. was an honourable and cultivated gentleman, a skilful physician, and prompt on all occasions to advance the interests of the profession and to uphold its honour and dignity. He was active in organizing the American Medical Association, and his interest in it never flagged. In 1867 he was elevated to the Presidency of that body.

FOREIGN INTELLIGENCE.

Hydrate of Chloral for Anatomical purposes.—Dr. WM. CRAIG (*Edinburgh Medical Journal*, Feb. 1876) confirms Dr. Keen's statement in *American Journal of the Medical Sciences* for July, 1875, as to the value of a solution of chloral for anatomical purposes.

As a preservative fluid for injecting bodies for the dissecting-room, numerous experiments which he has made lead him to the following conclusions:—

"1. Bodies injected with the hydrate of chloral are preserved from decay equally well as when the ordinary preservative fluids are used.

"2. If exposed to the air, or carelessly attended to by the students, the tissues become very black, and give off a disagreeable mawkish odour.

"3. Delicate nerve-plexuses can be more successfully dissected out when the bodies are injected with chloral solution; and,

"4. It is much cheaper than other preservative fluids."

As a preservative fluid for anatomical specimens, he states: "Solutions of the hydrate of chloral do not coagulate the albumen of the tissues, and, consequently, delicate transparent membranes are better preserved by chloral than by spirit or carbolic acid. There can be no doubt, that, as a preservative fluid for anatomical specimens, it is superior to spirit, if not to every known antiseptic. It is much cheaper than methylated spirit, and is destitute of the disagreeable odour of that fluid."

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Bacteria Poultices.—These are not precisely the sort of applications which, in our present state of opinion on the best sort of surgical dressings, we should wish to apply to open wounds. Nevertheless, M. NEPVEU, on passing a glass across the surface of a linseed-poultice, and of some fresh linseed ready for poultice from the hospital pot, found it swarming with "coccos, micrococcos, diplococcos, and streptococcos; with bacteria, micro-bacteria, and meso-bacteria." The patients' wounds seemed to heal under them very satisfactorily all the same. M. Nepveu draws from this a series of conclusions, one of which very naturally is "that bacteria are not in themselves poisonous, as Leplat and Jaillard (1864), Onimus (1873), Billroth (1870), and Richardson (1867), have described them to be."—*Brit. Med. Journal,* Feb. 12, 1876.

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Bacteria in the Urine.—M. NEPVEU has discovered bacteria in quantities in the urine of a patient who was suffering from hæmaturia after a fall, but who had never been catheterized (Société de Biologie, 4th December, 1875). This is *à propos* of a suggestion made by Dr. Ferrier some few years since in this *Journal,* that the introduction of the unpurified catheter was the most common cause of putrefaction and of the introduction of bacteria into the urine. Others, who followed Ferrier without always recognizing his priority, have gone to the furthest extreme of generalizing from his suggestion. M. Nepveu points out that the microscopic powers which Pasteur used in this investigation were insufficient, as his experience in this and other cases has shown, to discover micro-bacteria and micrococcos. From his examinations of the blood, he believes that in these cases the micrococcos and micro-bacteria find their way into the urine from the blood. The urine in his case was slightly alkaline, but not at all ammoniacal or fetid. —*Ibid.*

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Prof. Gibert's formula for what is called in the Paris school the mixed treatment of Syphilis.—This is as follows: Biniodide of mercury, one gramme; iodide of potassium, fifty grammes; water, fifty grammes. Dissolve the salts in the water, and strain the solution; then add simple syrup (cold) 2400 grammes. The dose is a tablespoonful. As this quantity represents twenty-five grammes of the syrup, each tablespoonful will therefore contain one centigramme of biniodide of mercury and fifty centigrammes of iodide of potassium. This mixture, known by the name of Sirop-Gibert, is the favorite hospital remedy for syphilis in all its stages, and is preferred to the pills of the proto-iodide of mercury prescribed by the father of French syphilographers, M. Ricord, as a more manageable and safer preparation.—*Med. Times and Gaz.*, Feb. 12.

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Death from Chloroform.—An inquest was held at Stafford lately on the body of Jeremiah Tooth, a labourer, who had died in the Infirmary while under the influence of chloroform. Dr. REID, the house-surgeon, said he administered the chloroform in the presence of five other medical men, as the deceased was about to have the elbow-joint amputated. He had previously examined the deceased with the stethoscope, and obtained no evidence whatever of heart disease. Three drachms, about an average quantity, were administered, and while the deceased was taking it his pulse stopped, and he died instantly. The usual methods of restoring animation were adopted, but without success. A *post-mortem* examination showed that the heart was larger than usual, and that there were other traces of disease. Dr. Day and Mr. Greaves were of opinion that death resulted from paralysis of the heart.—*Brit. Med. Journ.*, Feb. 5, 1876.

Report of the Royal Commission on Experimentation on Animals for Scientific Purposes.—This report has just been presented to Parliament, and it is stated in the *Brit. Med. Journ.*, Feb. 19, to be a "document characterized by not less ability and moderation than might have been anticipated from the composition of the Commission, and the very great pains which they have bestowed in collecting and sifting a great mass of evidence from witnesses of all classes."

The Commission "have received evidence from fifty-three witnesses, including all the leading physiologists of the three kingdoms, many eminent physicians and surgeons, and representatives of the various societies which have been formed for the abolition or limitation of experiments on animals.

"The Commissioners vindicate the physiologists, physicians, and medical students in this country from the imputations which have been cast upon them. They have great satisfaction in assuring Her Majesty that a general sentiment of humanity on this subject appears to pervade *all* classes in this country, and the evidence which they cite rebuts the charge of 'anything like indifference to suffering' on the part of students or physiologists. The Secretary of the Royal Society for the Prevention of Cruelty to Animals readily acknowledges that he does not know a single case of wanton cruelty.

"On the question, Can the practice of subjecting living animals to experiments be altogether prohibited? they arrrive at the conclusion that, even if it were possible, it should not be attempted. A number of examples are briefly referred to of the vast influence which experiments on living animals have had in the progress of medicine, and the benefits which have been conferred on mankind.

"Having arrived at conclusions favourable to the practice of experiments upon living animals for the attainment of knowledge applicable to the mitigation of human suffering or the prolongation of human life, the Commissioners proceed to consider what measures, if any, may be reasonably adopted to prevent the likelihood of abuses—of the present existence of which they have frankly confessed that no evidence has been adduced.

"The final conclusion at which the Commissioners arrive, is to recommend the enactment of a law which should vest in the Secretary of State the power of granting licenses to persons desirous of performing experiments upon living animals. The licenses would bear conditions calculated to insure that in no avoidable case should suffering be inflicted; and that, where unavoidable, it should be reduced to a minimum. The responsible minister should be guided by the opinion of advisers of competent knowledge and experience, whose names should be publicly made known. An inspector or inspectors should be appointed, of knowledge and position such as to command the confidence of the public no less than that of men of science. Licenses would be revocable on proof of abuse; but, as a safeguard against misuse of this power, an appeal to a Judge of the Supreme Court with three competent assessors is recommended."

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Rivers Pollution.—This subject is exciting great attention in Great Britain, and is one of great importance in this country, where we are permitting this nuisance to be established, and which, if not timely arrested, will be sustained by so many pecuniary interests, that, however prejudicial to health, it will be difficult to abate, as is found to be the case in Great Britian.

The *Lancet*, Feb. 5th, remarks: "The condition of our rivers and streams, so rapidly passing from bad to worse, has long been recognized; and in 1865 commissioners were appointed to investigate the subject and suggest remedies. In 1868 these commissioners were superseded by others, who greatly extended the labours of their predecessors, and who have but lately issued their final report. We have before us as we write the fifteen folios in which the results of these elaborate inquires are presented. They constitute a work of the greatest national value, pregnant with information gleaned in all parts of the country, with experimental researches often quite novel, and with suggestions almost invariably moderate and sensible. The two final reports contain the mature recommendations of the commissioners founded on the results of ten years of patient study of the question in all its bearings. Every proposal, every objection brought before them, has been carefully weighed, and is discussed in some one of the reports. Full allowance for the difficulties of sanitary authorities and manufacturers has been made, and a standard of purity laid down which, it is believed on no light grounds, may be imposed with safety."

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Artificial Ice.—Prof. JOHN GAMGEE has for five or six years been working incessantly at the economical production of artificial cold as applicable to fresh meat preservation, and this has led to so remarkable a control over temperature as to provide a remedy for the evils of asphalte and roller skates. On January 6th he completed a rink of modest dimensions, but which has since afforded pleasure to some scores of skaters. The frost set in just as the rink was completed, and the thermometer registered under the shed when the ice was laid 35° Fahr. in the daytime, but as low as 19° Fahr. in the night. Since the ice is formed artificially from below upwards the difficulty to contend with at first was the simultaneous freezing of the double layers of ice which, however, soon joined, owing to the more intense cold from the machine below. A thaw soon set in, and, whereas it took from two to four hours to get a good surface in frosty nights, with warmer weather and ready surface evaporation one hour then sufficed to get a renewed layer of glassy ice.

Very interesting experiments were performed by cutting deep holes in the ice, and pouring boiling water in the wounds, which instantly healed by what a surgeon would call the formative process. The air, too, night and day for the past fortnight, has hovered between a few degrees above freezing and as high as 50° Fahr.; and by a system of overhead cold accumulators, in spite of these high temperatures, the refrigerating machine has been stopped as long as from Friday night to Monday morning; on two occasions only, owing to the work in progress, has the slightest thaw been seen on the surface of the ice, and on one of these our informant happened to be present, and saw, that, whilst a thin film gave way during some alterations to the pumps, so soon as the circulation started, the surface dried up promptly and became covered with a rime from condensation of the moisture from the atmosphere.

The skaters, members of the London Skating Club and others, have pronounced the ice to be the hardest and best that they have ever tried, and this is not to be wondered at when it is considered that a layer from one and a half to two and a half inches thick can be frozen by Mr. Gamgee's uncongealable compounds at temperatures varying from 20° to 30° below freezing-point. The ice machine itself is remarkable for a condenser which enables one to work with only five gallons of ether in a machine which in a few hours lowers between three and four tons of liquid from 45° or 50° Fahr. to 0° Fahr. At present it is working at a vacuum of twenty-four to twenty-five inches, but in his numerous economies the inventor believes he has at last superseded expensive air-pumps. The present engine at his ice-works, King's Road, Chelsea, adequate to work machinery to make over ten tons of ice daily, consumes just a little over one hundred weight of coal per hour, and a very extensive "ice rink" can be maintained with half this expenditure of fuel.

In a sanitary point of view, Mr. Eassie reports that repeated visits made by him indicate that the ice has no tendency to produce cold injurious to the feet. The ice is itself never above 32° Fahr., whatever may be the temperature of the uncongealable liquid below it, and the tendency is to dry the warm air above without producing any unpleasant or even appreciable cold sensation. In a closed apartment, with roof ventilators to remove promptly all hot and foul air, the rink can at all seasons be cool and comfortable without any draughts. If the ice were in the roof of the building, the cold would be unbearable, but from below upwards its effects are practically *nil.*—*The Sanitary Record*, Jan. 29, 1876.

Boundary Line between Animal and Vegetable Life.—Prof. HUXLEY delivered an interesting address on Friday evening, Jan. 28th, at the Royal Institution, in which he showed with his accustomed clearness how all the old land-marks that were once held to indictate the boundary line between the animal and vegetable kingdoms have gradually been effaced, and, what perhaps is still more remarkable, that the advance of science, so far from affording new and more accurate means of diagnosing the members of the two kingdoms from one another, has tended to show that the simpler forms of each are really indistinguishable, and that a new kingdom corresponding to that which has recently been characterized as the "Protista" by Haeckel, and which shall include all the simpler types of organization, must be admitted. Cuvier considered that the main distinctions between an animal and a plant were, that the animal had the power of locomotion, and consequently possessed all the apparatus requisite for that purpose; secondly, that it possessed a digestive cavity and, as a rule, a circulatory apparatus; thirdly, that its chemical composition was characterized by the presence of nitrogen; and, lastly, that, whilst animals exhaled carbonic acid gas, vegetables exhaled oxygen. But one by one these several diagnostic marks have been proved to be inaccurate. Recent investigations have clearly shown that all living matter, whether animal or vegetable, contains nitrogen, and that all plants, when not exposed to sunlight, exhale carbonic acid, whilst some, as fungi, exhale it even when exposed to sunlight. The diagnostic mark drawn from the supposed presence of a circulatory apparatus was practically given up by himself, whilst the microscope has revealed multitudes of vegetable organisms which possess active powers of locomotion. Professor Huxley, however, pointed out, that, if the terms of one of Cuvier's diagnostic marks were changed, it might still hold good. It might not, indeed, be true that animals always had a digestive cavity, and that plants had none; but there was a large basis for the generalization that a plant was able to make the substance of its body out of dissimilar chemical substances, while an animal was unable to do that. As concrete cases of this, he instanced the growth of a bean in a nitrate of ammonia and saline solution, which contained nothing comparable to bean substance, and the enormously rapid germination of blue mould in a solution of tartrate of ammonia. In these cases the resulting subtance of the plants which were built up contained matters of which there was no trace in the solutions; while animals could only break down and destroy the protein compounds furnished to them by other animals or plants.

Prof. Huxley then described the results of his microscopical examination of the active organisms, the generation of which had been the subject of the previous Friday evening's lecture. After referring to the bacteria, he entered into some details in regard to the structure of a vegetable organism he has christened "Heteromite Leus," an actively moving organism, about the size of a human blood-corpuscle, oval in shape, containing granules, and terminating in a cilium at one end. Little is known of the life history of this creature, but it is probable that it undergoes fission at such a rate as to produce a thousand couples in an hour, one million in two hours, and one thousand million in five hours. What would Malthus have said to these numbers?—*Lancet*, Feb. 5, 1876.

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Testimonial to Stromeyer, of Hanover.—The English weeklies of Feb. 19th contain the report of a private meeting, of distinguished hopital surgeons, held to consider the propriety of joining in the movement now going on in Germany to celebrate, on April 6th next, the fiftieth anniversary of Dr. STROMEYER's taking his degree in Göttingen.

It was moved by Sir James Paget, and seconded by Mr. Erichsen, and unanimously resolved: "1. That an address be presented to Dr. Stromeyer, expressing the congratulations of the signataries to it on his long, active, useful, and honourable professional career, as shown by the results of his discovery of the value and safety of subcutaneous surgery, by the high tone of his surgical writings, and by his persistent efforts to improve the principles and details of surgery, especially as applied to gunshot and other wounds received in war, as well as of military hygiene. 2. That Dr. Stromeyer be requested to sit for his bust, to be executed in marble by the most able German sculptor he may select. 3. That a subscription-list be opened to defray the expense of carrying out the above objects; that no single subscription shall exceed two guineas; and that subscriptions be not received from persons who are not members of the medical profession."—*Med. Times and Gaz.*, Feb. 19, 1876.

We are happy to learn that the profession in America will shortly be offered an opportunity of personally expressing their esteem for Dr. Stromeyer, as he has communicated to the Centennial Medical Commission his intention of attending the International Medical Congress to be held in Philadelphia in September, 1876.

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John Hunter and the Democrats.—At a sale of autographs on Saturday last, by Messrs. Sotheby, there was a very interesting letter, one page quarto, by John Hunter, in answer to a person applying for a ticket to view his collection, which was only open during the months of May and October: "If your friend is in Town in October (and not a Democrate) he is welcomb to see it; but I would rather see it in a blaze like the Bastile than shew it to a Democrate, let his country be what it may." (The orthography is strictly preserved.) The letter was accompanied with a portrait of Hunter, and an autograph note of Mr. Collingridge, and was knocked down for £2 4s.—*Med. Times and Gaz.*, Feb. 12, 1876.

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Obituary Record.—Died, Feb. 13, 1876, in Paris, after a short illness, M. Gabriel Andral, in the 79th year of his age. M. A. was one of the most illustrious and esteemed physicians, and one of the most admired and successful clinical teachers of our age. He successively occupied several chairs in the Faculty of Medicine. Some years since, in the midst of a most brilliant career, and with his powers undiminished, he abandoned his profession and retired to Chateuveaux, a small village of Loir-et-Cher, to devote himself to the care of his sick wife, a daughter of the illustrious Royer-Collard. His son by this marriage, M. Paul Andral, is at present Vice-President of the Council of State. Thus has passed away the last of that celebrated trio of clinical teachers—Louis, Andral, and Chomel—which shed special lustre on the Paris Faculty, and rendered it for the time being the most eminent medical school in Europe.

——, Feb. 25, in Edinburgh, from enlargement of the heart, thinning of its walls, and fatty degeneration of the muscular tissue, Dr. James Warburton Begbie, aged 49 years. Dr. Begbie, says the *Lancet* (March 4), was an admirable physician—most careful and painstaking in his clinical investigations, and not losing his interest in cases when he had made a clear diagnosis, but going on with faith and heart to the treatment of them, in which he was most successful. Witness the faith which he brought to the treatment of cases of aneurism with iodide of potassium, and the eagerness with which he lately recorded the use of chloride of ammonium in cases of hæmatinuria. He had always a word of cheerful and fresh advice for any patient and practitioner who consulted him. He was not only a thorough physician in his clinical care and his study of therapeutics, but there was a remarkable pleasantness and fascination in his manners, based on his sincere kindliness, which are invaluable qualities in a medical man, and which gave every patient he spoke to the impression that he was humanly and specially interested in his case. Further, to use the words of an esteemed Edinburgh physician, "in an especial manner he was sound to the core in the ethics of his profession—his conduct having been most honourable in all respects."

His contributions to medical literature were very numerous and exceedingly valuable.

In the death of Dr. Begbie the science of medicine, as well as his numerous patients and friends, has sustained a loss which will be deeply felt.

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As it stands it is the most convenient and useful manual on its special subject in our language We can cordially recommend the book as one of the most useful of the recent additions to medical literature.—*The Journal of Nervous and Mental Disease*, Jan. 1876.

It is useless to demonstrate the merits of a work which has long been accepted by both the legal and medical professions as the highest authority on medical jurisprudence. In this new edition the author has spared no pains to maintain this enviable and well-deserved position. We will not examine in detail the changes introduced, for to do so would be to review the whole of scientific progress of late years in regard to toxicology. We will only add that a large number of illustrations have been introduced, and that the typographical execution leaves nothing to be desired.—*L'Union Médicale du Canada*, Feb. 1876.

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As every one knows, this is the most complete and reliable work on the subjects of which it treats published in any language—not even excepting Malgaigne's excellent and standard treatise. Hence it would be a waste of time and space further to attempt to convince our readers of its excellences. It remains only for us to add that in every respect this fifth edition has been thoroughly revised, and contains some fifty pages of new matter more than the fourth edition.—*Va. Med. Monthly*, Jan. 1876.

HENRY C. LEA—Philadelphia.

THE MEDICAL NEWS AND LIBRARY.

VOL. XXXIV. MAY, 1876. No. 401.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on Mammary Tumours. By George Buchanan, M.D., Prof. Clin. Surgery in the University of Glasgow.

Gentlemen: I propose to bring before you to-day some cases that have happened at different times during the previous few weeks, and of which we have another example to-day. I refer to cases of tumour of the mamma. Before introducing the patient, the history of whose case will form the text of our lecture, I have to remind you that the study of tumours, and especially of malignant tumours, may be viewed in three aspects. First, in your systematic lectures on surgery, you get a complete view of the whole subject of tumours, without reference to particular examples. Secondly, in your class of pathology, you study and have demonstrated to you the origin, growth, and internal structure of these tumours. The

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object of a clinical explanation of these subjects is to concentrate into a focus just as much of all that scattered information as really avails you in practice. It is exceedingly interesting philosophically to study what are the causes, proximate and remote, the mode of growth, the internal structure, and the progress of these things; but when you have to deal with a living person, only a certain amount of that great extent of information really comes into play. I wish, if possible, to concentrate into these remarks the most of what is available, supposing you in private have to deal with a case such as that now brought in.

This woman is forty years of age, unmarried, of spare habit of body; and hitherto she has enjoyed good health. The catamenial function was regular from its appearance up till eighteen months ago, since which time it has altogether ceased, without any cause. Three months ago, she became aware of a tumour in her right mamma. Her attention was drawn to it by feeling her dress a little tight. There was no pain when she discovered it. During the last three months, it has increased in size, and the growth has been more rapid of late, especially during the last two weeks, following on a slight blow on the back of a chair; though, remember, I do not say that was the cause. In the right mamma, occupying the upper portion, there is a tumour which is irregular, nodular, about four inches in diameter, and to the feel about three inches thick. The tumour and the gland in which it is imbedded move freely upon the subjacent structures, and are not in any way adherent. Immediately above the nipple, the skin is partially adherent to the tumour; but towards the circumference it is freely movable upon it. The nipple is slightly retracted, but not to any extreme degree. The axillary glands are perfectly free from implication. So far as the patient's sensation is concerned, there is no difference between the two mammæ, except what is produced by the weight of the tumour on the right side. I may say negatively that there is no shooting or burning pain. The tumour is, as I have said, slightly irregular in form, and hard to the feel.

Such is the case, and a very valuable case it is to learn from; because, although I have no doubt in my own mind as to the nature of the tumour, if you take any work upon the subject, and examine into the symptoms there given of scirrhous mamma, you will find that, in a great number of important points, the symptoms are here absent; yet there is not the slightest doubt that this is a case of scirrhous mamma, and that, I hold, is the value of clinical observation as compared with doctrinal teaching. If a surgeon go and examine a case of this kind with his mind filled with the tabular statement of symptoms, the absence of many of the most important of these symptoms might lead him to believe that it was not a case of scirrhus. But by bringing the patient before you, and making her tell, in her own simple way, all that she knows and all that she could tell you in private, and by examining the tumour simply and regularly before you, and by learning everything about it, we are driven to the conclusion that in practice we must meet with a great variation from the ordinary run of cases as described in books.

What is the nature of this tumour, and what should be done in the circumstances? Now, I do not intend to give you a list of all possible tumours, or of all growths in the mamma or other parts of the body; but I think it is very important to put before you a clinical view of the subject. Tumours of the mamma are of two great classes—the malignant and the non-malignant. Simple or non-malignant tumour consists of the collection into one spot of one of the normal constituents of the body. Thus, confining our attention to the mamma, we may have fatty tumour, fibrous tumour, adenoid tumour; and these are simple, because they consist of the same substances which form normal parts of the body. Malignant tumour, on the other hand, is formed of a collection of substances which are a new growth in the human body; of abnormal substances which do not exist in the body of the living man. That is the essence of the distinction between the two kinds of tumour. If you examine the minute structure of the simple non-malignant tumour, you will find it to consist of a modification, it may be, of one of the normal tissues of the body; if you examine the malignant tumour, you will find it to consist of tissue of which there is no example in the human body.

With regard to the mode of growth, simple tumour extends by increase of bulk, displacing, pushing aside, perhaps causing to be absorbed, the tissues with which it is surrounded. Malignant tumour increases in bulk by incorporating with itself the adjacent tissues, and gradually converting them into itself. Further, simple tumour is for the most part isolated and incapsulated, contained in a membrane which is called its capsule. Real malignant tumour has no absolute defined membrane, but invades all the neighbouring tissue without any well-marked margin. The ordinary name of cancer is well given to malignant tumour, because it gradually draws into its centre all the neighbouring parts, so that in the end it extends without limitation.

Now it is very important for you to mark well a few of these characteristics, because upon them will depend the opinion that you will give with regard to the propriety or impropriety of operating upon a patient. It is perhaps unnecessary to go further just now; but it will complete the clinical view of the case if I state that, while it is true that there are two great classes divided from one another by well-defined marks simple and malignant, there is a debatable ground between the two—a variety of tumours or growths which it is exceedingly difficult, if not impossible, to assign either to the one or to the other; and, in addition, the malignity of the tumour occurs in different degrees of intensity. That form of malignant disease which is called encephaloid, that called scirrhus, and that called colloid, are three varieties in which there is no doubt whatever of the intense malignity—I mean of their inherent abnormality of growth, if I may use the term, and their enormous tendency to return if removed; so much so that, in dealing with tumours of that kind, we are absolutely unable to say that we expect them not to return, though the time of their return is a matter of doubt. But then there is another kind of malignant tumour, which, though properly called cancer, is less malignant than the others, and this less malignity is shown both clinically and microscopically. Epithelioma or epithelial cancer differs from those which I have previously mentioned in being an exaggeration of the epithelial tissue. I beg you here to remember that I am not going into the deep pathology of tumour; because, were we to go a little further than we are doing at present, we would fall into the discussion between the epithelial and fibrous pathologists. There is one class of pathologists who hold that all tumours, especially malignant tumours, arise altogether from an abnormal change taking place in the epithelial tissues. Another set hold that all malignant tumours arise from an alteration of the fibrous structure in the particular part. Epithelial tumour resembles closely the natural epithelium, only it is more complex in its arrangement. In this way, therefore, while in internal structure it has a certain resemblance to the true malignant tumour, it partakes, also, of the character of simple tumour clinically, because it can be removed with success.

But there is a kind of tumour which belongs to the simple or non-malignant fibrous kind, which partakes of malignancy, inasmuch as it returns after removal. Such is the tumour which used to be called recurring fibrous tumour. You will observe that I am adhering to the old nomenclature; and I do so with the view of conveying information to the comparatively junior students. When you enter the pathological class, you will find that tumours are differently classified.

Having, then, stated these elementary views as to the character of tumours, let us now say a word or two with regard to their treatment. The question I am going to discuss is not so much the possibility of treating these tumours medically in the way of palliation, but particularly with regard to surgical removal. I wish, however, to tell you at the outset that, because a person has a well-defined tumour in the mamma, it is not absolutely necessary to excise it. I shall say nothing at present with regard to removal by caustics; but it has fallen within my own experience to have seen several most remarkable examples of the disappearance, I might almost use the term cure, of tumour by pressure; and that information is, I think, of great value, because in many cases, from the constitution or the age of the patient, or from the implication of the neighbouring parts, you could not, with any degree of conscientiousness, recommend removal of the tumour; but I could show you ladies in Glasgow at the present day who have had tumours in their mammæ, and who are now absolutely free from the disease by the application of careful and well-directed pressure. You are aware that pressure will cause absorption both of normal and of abnormal tissue; and you are probably aware that, if a person have an aneurism of the aorta, and if the aneurism continue to grow, it not unfrequently happens, through the tumour pressing upon the sternum, that it gradually induces absorption of the bone until it appears underneath the skin, and, if not arrested, it spontaneously bursts, and causes loss of life. We are all aware of the importance of pressure in assisting the absorption of abnormal fluids; as by the use of a splint and bandage in cases of effusion into joints. In the same way, pressure, well directed to the breast, has a remarkable effect in causing the absorption of tumours; and I now am in the habit of ordering the application of a properly prepared apparatus in cases where, either from the situation, or the implication of the neighbouring parts, I consider that the operation of excising the mamma would be unadvisable.

But, next, with regard to operation: what is the difference in the probable result or prognosis between excision of simple tumour and excision of malignant tumour? If we excise simple tumour, we remove the whole disease, and there is no more tendency to its reappearance. We can, therefore, undertake its excision with absolute certainty of success, so far as return of the disease is concerned. We can never, however, promise to perform any operation with absolute freedom from danger, because, in certain states of the constitution, the smallest scratch may end in death. Persons frequently come to the surgeon suffering from a serious disease resulting from very simple causes. We have at present a man in the infirmary with his hand and arm inflamed to such an extent that he is likely to lose them, and all from a scratch at the point of one of his fingers. It does not matter, then, whether the scratch is given by the surgeon or by the patient; it depends upon the state of the constitution whether or not inflammation will ensue. In the excision of simple tumour, then, all that is necessary is that the whole tumour shall be removed—you must not leave a bit of it. But you can do this with absolute certainty; because all that you have to do is to cut through the surrounding tissues, and remove it entire with its capsule. Should it chance to be irregular, and should you leave any part of it, you have simply to take the precaution of dissecting the bit that remains; and, having done this, you may give a certain opinion that there will be no return of the disease. But, with regard to malignant tumour, it is different, inasmuch as it is not isolated or incapsulated, but is of the nature of invading the neighbouring tissues. It is a difficult point to decide how far it extends in the neighbouring tissues; but, taking it for granted that what appears to you to be the limit of the tumour is not the limit, the golden rule is to make your incision clear of the tumour, to cut well beyond it into the sound tissue.

In excising a tumour from the mamma, do not, if possible, leave a single gland-cell—take the whole mamma away. In certain instances, especially in cases of epithelioma, such as may be situated on the back of the hand, on the sole of the foot, or on any part of the limbs, upon the edge of the lip, upon the face, or upon the extremity of the penis, where epithelial tumours are found, in such situations you can with safety cut away a large portion of the sound tissue beyond the disease; and in these circumstances, you may with certainty predict that the cure will be complete. But, in regard to other tumours not epithelial, there is this one other thing to be said: that, while you can remove a tumour and its surroundings perfectly accurately, the constitutional tendency that has been the cause of the malignancy—of which I have said nothing at present—that tendency still remains; and you can only hope that it will not show itself, and return in some other part of the body. In the case of malignant tumours, all the other parts in the neighbourhood of the mamma are apt to become secondarily implicated.

Most of you are aware, of course, of the absorbents of the mamma. And here I would say to the students who are not yet out of their anatomical studies, that the study of the absorbents in certain regions of the body is very important—as, for instance, the groin, axilla, etc. Now, it not unfrequently happens that a tumour in the mamma irritates the absorbents, that irritation is communicated to the absorbent glands, and they become enlarged. Besides, while the absorbents are naturally adapted for the purpose of carrying away the fluids of the body which are to be used again, in the case of the diseased tissues they take up the diseased substance, and carry it backward to the lymphatic glands, for the purpose of undergoing elaboration. In this way, there is a danger of the lymphatic glands becoming infiltrated with the cancerous matter. It is not because of the proximity, but because of the course of the absorbents from the mamma through the axilla, that the removal of the mammary gland will not cure or destroy the disease; it will be left in the absorbents. Hence, with regard to the return of the disease, it is of absolute importance, so far as the prognosis is concerned, that you should know whether the axillary glands are implicated or not. If they be, you may be certain that the day is not far distant after the operation—it may be weeks, months, or years—but the day will come when the disease will show itself in the axilla or neighbourhood. You may relieve the patient for a long time; but I believe, if the absorbent glands be in any degree affected, it is a question of time.

Such being a general view of the nature of an operation and its results, let us come back to our case. Here is a woman with a tumour of the mamma that presents many of the appearances of scirrhus, yet some of the symptoms are absent. There is, first, the absence of pain. You will find in most of the treatises on the subject that pain is considered diagnostic of scirrhus—shooting pain, tearing across the chest, very frequently shooting down the arm and giving rise to want of rest. When that is present, it is almost always a diagnostic sign of scirrhus. But its absence is not a proof that it is not scirrhus; for here is a patient who has a tumour as manifestly scirrhus as it can possibly be, as you shall see next Wednesday when we cut it out. Secondly, there is often implication of the neighbouring glands, and that is absent in this case. And there is another point in which this tumour differs from most mammary scirrhous tumours; namely, absence of retraction of the nipple. This, which is commonly regarded as one of the symptoms of scirrhus, is simply a mechanical result. In scirrhus of the mamma, the whole substance involved is converted into a firm, hard, rigid structure. The progress of scirrhus is to extend, to draw together what is a soft, irregular, moist substance into a hard rigid substance, the section of which, in a freshly excised tumour, has very much the appearance of a frosted turnip. The skin of the mamma is more or less movable on it; but the nipple is joined to the gland by ducts and fibrous structures, and consequently, when contraction of the scirrhus takes place, it may recede a little from the skin, and yet the skin does not follow it till adhesion actually takes place; but, the nipple being attached to the gland in which the malignant substance is infiltrated, retraction is simply a mechanical result. In this case, the nipple is partially retracted, but not to such a degree as would indicate scirrhus if there were no other symptoms.

What, then, is the characteristic mark which enables me to say that it is scirrhus? The name indicates. Scirrhus is a substance hard, unyielding, slightly nodular. When these symptoms are present, there is almost no other tumour of the mamma that it can be.

If this, then, be a case of malignant tumour, of undoubted scirrhus, and if it be true that scirrhus, after being removed, has a great tendency to return, either in the former seat of the disease or neighbouring parts, why do we perform the operation? That is one of the most difficult points for the surgeon to make up his mind upon, and it is a very poor subterfuge for him to tell the patient the *pros* and *cons*, and leave her to decide. In the present instance, the patient is so absolutely unable to come to anything like a correct judgment, that the surgeon should be definite in his opinion. There are a great number of operations in which the patients can assist the surgeon; in which they can make up their minds for themselves. In cases where it is not a fatal malady, in cases where it is a mere deformity of appearance, in these and numerous similar cases, the patient can be taken into the surgeon's confidence. But I do not think it is possible for any patient or friend of a patient in a case such as the present to put himself into the position of having proper information with regard to it, and it is, therefore, for the surgeon to make up his mind. In not a few cases of patients who have been brought before me in private for consultation, I have said, "No; I shall not operate." In a notable example, I have said, "This operation ought to be done;" but it is very difficult to convey to you the reasons that should induce the surgeon to operate, or refuse to do so.

But let us take the present case as an example. What are the circumstances which should induce me to perform an operation upon this patient? First, as regards the tumour; and, second as regards the woman.

As regards the tumour, it is perfectly movable upon the subjacent parts; it is quite clearly non-adherent upon these parts; secondly, the skin upon the circumference of the tumour is absolutely healthy; thirdly, the axilla is perfectly unimplicated. These are the three points with regard to the tumour which make it certain that, if operation be properly performed, the tumour and its connections can be removed without leaving a trace of the disease behind it. Now, scirrhus is one of those forms of disease so connected with the constitution, that it is not at all unlikely that, at no distant day perhaps, the disease may reappear in the other mamma, in the axillary gland, or in some other part of the body; but, even supposing I were perfectly certain that within a year the disease were again to show itself, should I not take that into account?

Let us next, therefore, consider the woman. And I think it is a very important thing for students to get into the habit of considering their patients. I am afraid that the tendency both of the surgeon and the students of surgery is to look at the physical condition of the part, forgetting a little the circumstances of the patient. I hope that is not the case with you; but it is important that it should every now and then be brought before you. Here is a woman who has comparatively suddenly become aware that she has cancer in the breast. I did not need to tell her that; she knew well enough, and that was why she came to me. She said, "I have got cancer in the breast." As you saw, she is of a nervous temperament, and she has a very disagreeable and painful feeling with regard to this scirrhus in the mamma. She has the horror of cancer upon her. Unlike many other diseases, cancer creates in the patient who is conscious that he or she has it a feeling of great depression. This patient wonders what will happen. We do not tell her what will happen, but we all know very well. A growth discovered three months ago suddenly puts on activity, which causes it to increase in size very much more than before. Within that time, probably, adhesion to the skin near the nipple has taken place, and that is the only part that is adherent. What will be the history of the case if I do not touch it? The adhesion to the skin will increase; a little red spot will show itself where the adhesion to the skin exists; within a short time, ulceration will take place, creating a loathsome discharge;

the life of the patient will extend to two or three months, during which her whole existence, till death relieves her, will be most painful. That would probably be the history of the case. Well, if we be able to perform the operation in such a way as to enable her to recover from its effects, and if we be able to eradicate the disease, temporarily even, we will then have it in our power to say to the woman, You are free from cancer; your tumour is away; your disease is removed; it is in the hands of Providence when it may return; in the mean time, you are a healthy woman. Is it not worth while undergoing an operation which is rarely fatal, rarely dangerous, for the sake of being free from the condition I have described, restored for weeks, months, perhaps years, to a state of perfect health? I maintain that excision of the mamma ought to be performed; and for these reasons, which you may extend to others, I intend to operate upon that woman. I hope and believe the operation will be successful, and when the wound is cicatrized, she will leave the hospital perfectly healthy for the time being. To show that this is no chimerical notion, I ask you to remember the operation you saw performed the first operation-day in this hospital, where you saw removed from a woman a large tumour somewhat of the same kind. She is not here now, because, two days ago, I gave her an admission here to the Convalescent Home at Dunoon, where she is at present enjoying herself; whereas, if the operation had not been performed, she would have been lying in bed, suffering from a loathsome discharge from a disease which would result in her death in a very short time; and I think that is a great deal gained.

In connection with this case, I here show you a remarkable specimen of colloid tumour, the second I have seen during my whole experience, which I removed the other day from a patient aged 70, who is now perfectly recovered.

The second patient I now present to you tells us that she is about 40 years of age, unmarried, and that, about three years ago, she got a blow on her right breast. A year after that, she became conscious of a small swelling on the breast, which has gradually enlarged till the present time. The whole mamma is converted into a firm, hard tumour which adheres to the pectoral muscle; the nipple is retracted, the skin nodulated and ulcerated, and the glands of the axilla enlarged and indurated. I need not tell you that, in such a case, no one would for a moment hesitate. To interfere surgically would not only hasten the fatal issue, but would bring opprobrium on surgery.—*Brit. Med. Journ.*, Feb. 26, 1876.

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Clinical Remarks on Cases of Acute Necrosis. By Mr. Savory of St. Bartholomew's Hospital.—Among the subjects treated of by modern writers on surgery, necrosis is one that has received less attention than it deserves. Necrosis is of two forms—acute and chronic. By chronic necrosis is understood such an affection of bone as is constantly seen and operated upon with success in the young adult. Its ordinary course is, that from some cause or other a portion of bone perishes. As a result of this an abscess forms, which is either opened by the surgeon or breaks spontaneously. On a probe being passed through the opening, the dead bone is at once detected. A portion of bone having perished, new bone is formed; the dead portion becomes loose, and remains inclosed in a cavity formed by the new bone. The duration of each case depends on the working out of these results.

Acute necrosis presents features quite different from these. It is a disease the true nature of which has only been recognized in recent times. As here applied, the term "necrosis" is an unfortunate one, for it takes into account only the final result, and not the nature of the affection. It would be better to lay it aside, and substitute "ostitis."

Necrosis is commonest in the shafts of the long bones, because there the bone is densest, and consequently there the vessels are most readily strangled when inflammation takes place. Caries is commonest in the cancellous tissue, because there inflammation can run a longer course without the circulation being so far impeded as to cause death in mass. Dr. Wilks, of Guy's Hospital, years ago published a paper in the *Guy's Hospital Reports*, on "Deep-seated Abscess of the Limbs;" and the cases there mentioned, looked at with the more thorough knowledge of to-day, are evidently cases of acute necrosis, accompanied, as these always are, by deep-seated abscesses.

To say that periostitis is the cause of acute necrosis is only to tell a part of the truth; so, too, it is an error to affirm that osteo-myelitis alone is its cause. Inflammation of bone, accompanied by both periostitis and osteo-myelitis, is its cause.

With regard to the causes of ostitis: The extension of inflammation from surrounding parts is rare, but may occasionally take place. Scrofula, whatever that obscure constitutional condition may be, must be regarded as predisposing to it. Syphilis is said to be a predisposing cause; but this is very doubtful. The early age at which it occurs negatives the existence of acquired syphilis; and I have not seen the hereditary affection in connection with it. Violence is a frequent cause; but the most frequent is exposure to cold and wet, as is exemplified in one of the cases upon which these remarks are founded. It is also very liable to follow where the vital powers of a patient have been much reduced by fever; thus, it sometimes follows scarlet fever, as it did in the second case brought forward.

A typical case has the following course: A delicate child (for it is a disease almost confined to children) is seized with severe pain in the leg or thigh. On examination, we find an undefined swelling, the bone and surrounding parts being fused together. There are the symptoms of local inflammation and severe surgical fever. Rigors are present, there is considerable elevation of temperature, and increased frequency of pulse. In a few days obscure fluctuation becomes appreciable in the swelling, and if now an opening be made a probe can be passed down to dead bone. During these few days the constitutional symptoms increase in severity. The after-progress of the case is marked by profuse suppuration; hectic takes the place of the surgical fever; and the child may die of exhaustion or pyæmia, or may recover with the limb so far damaged that new bone has replaced the old.

The first case is that of a boy, Robert L., aged ten years. Five months ago, while playing, he strained himself. The strain was followed by aching pain and limping. In the first week in October he got wet; a week afterwards there were swelling and pain in the thigh. The whole limb was everted, and shorter than the other by an inch and a half. The swelling went on to the formation of abscess, which was opened on the 11th. The temperature at one time rose as high as 106°.

As a rule, acute necrosis in the child affects the entire shaft of a bone, the epiphyses escaping, because in childhood they are distinct from the shaft. If they do not escape, the case is desperate; the joint is sure to become involved. In the above case it is doubtful whether the head of the bone became affected with necrosis, or whether the dislocation resulted from disease of the hip which had previously existed. The history of the case rather bears out the latter supposition.

The second case is that of a girl, Louisa F., also aged ten years. After an attack of scarlet fever, followed by abscess under the side of the chin, the right knee is described as becoming affected with acute synovitis. This subsided in about three weeks, but some swelling remained on the inner side of the thigh, where also there was doubtful fluctuation. Poultices were ordered, an abscess formed and was opened, and dead bone was detected with the probe. Subsequently erysipelas supervened and spread from the wound upwards. This is usually the direction which the disease takes; but in this case, after spreading upwards for some time, it changed its course and went downwards.

When necrosis has taken place, the sources of new bone in the adult are the periosteum, the living remains of the old bone, and the surrounding soft parts. But for the regeneration of bone in the child one of these is lost, for the periosteum perishes from the fierceness of the inflammation. The specimen shown should be looked upon as one of the most valuable in the museum, for it shows this point very well. It is the clavicle of a child, which, with its periosteum, has entirely perished from this disease.

The epiphyses are capable of playing a very important part in the production of new bone. In two cases where the entire shaft had perished, I have seen its reproduction brought about by the growth of new bone upwards and downwards from them till it has met in the centre.

A few words may be said respecting the occurrence of pyæmia in these cases. As a cause of this, acute necrosis is second only in frequency to wounds; and I fancy pericarditis accompanies cases of pyæmia resulting from acute necrosis oftener than from other causes.

With regard to treatment, it is best to cut down at once, and deeply, to the bone. By doing this the infiltration of surrounding parts and the destruction of the periosteum are prevented. In practice, amputation is rarely performed to avoid pyæmia. So long as that is only a possible event, it would not be justifiable, but when it threatens it would be right. Generally the indications for amputation depend on the part of the bone affected. So long as the shaft alone is diseased, so long we may hope to do without it; but when the epiphyses become involved, it only remains to choose the most fitting time for its performance.—*Med. Times and Gaz.*, March 4, 1876.

HOSPITAL NOTES AND GLEANINGS.

Treatment of Rheumatic Fever by Salicylic Acid, under the care of Dr. Broadbent, *at St. Mary's Hospital.*—Few diseases have had brought against them a heavier armament of drugs than has acute rheumatism. It has been stormed by alkalies and salines, attacked by acids, assaulted by perchloride of iron and by quinine, surprised by propylamine and elaylchlorüre, drained by venesection and purgatives, flooded alternately with hot and cold water, alarmed with blisters, blasted with hot air, lulled by opium, and appeased by chloral hydrate. In addition to these, it has been constantly harassed by the raids of lesser foes, such as lemon-juice, citric acid, belladonna, and iodide of potassium. Now another apparently powerful enemy has appeared. Salicylic acid has been shown by Stricker to be able to prevail against some cases of acute rheumatism, and Dr. Broadbent's experience seems to confirm this character. The beneficial action of the drug in the following cases was constant and unequivocal. Whether the reputation of this remedy will prove more durable than that of its rivals remains to be seen. The drug is at least worthy of a careful and complete trial.

For the following notes we are indebted to Mr. Jackson Gawith and Mr. H. Sworder, house-surgeons.

Case I. E. H., aged thirty-one, domestic servant, was admitted Feb. 2d, suffering from rheumatic fever. She was first taken ill on Jan. 28th. On admission, she had severe pain in the left ankle, the right knee (which was greatly swollen, tender, and contained fluid), and the right wrist and elbow. The heart's action was frequent, the sounds normal; temperature 103°; pulse 128. Salicylic acid was ordered to be given in doses of seven and a half grains every hour for six hours. —6.30 P. M.: After having taken four powders, the pain in the joints was not quite so bad; perspiration not increased; heart sounds normal; pulse weak, 120; temperature 102.2°. —11.30: Seemed comfortable; had slept soundly for three hours. Tongue furred, but moist; temperature 101.2°; pulse 100.

Feb. 3. Perspired freely during the night. Had not been sick. Pain in legs somewhat increased on movement; tongue clean; bowels opened; temperature 99.8°; pulse 96.

4*th.* Better; legs not painful, but stiff on movement; temperature 99.2°; pulse 90; heart-sounds normal.

5*th.* Patient had a very restless night, but the pain in the joints was much less, and there was less stiffness; temperature 98.8°; pulse 84.

6*th.* The salicylic acid was ordered three times a day. Patient quite free from pain; joints of normal size, not tender or stiff. Heart-sounds normal, appetite improving. Temperature 98.4°; pulse 80.

7th to 14*th.* Convalescence satisfactory, and she was discharged on the 14th, feeling quite well and strong.

Case 2. L. W., aged seventeen, a valet, was taken ill on Feb. 19th, remaining in bed next day on account of pain in his legs and swelling in his right knee. On admission on the 23d the symptoms of acute rheumatism were well marked. The legs were drawn up and very painful. Temperature 103°; pulse frequent, artery large, full between beats; a grave soft systolic murmur heard at apex of heart. Fifteen grains of salicylic acid ordered every hour for six hours. The first powder was taken at 6 P. M., the temperature at 5.35 being 102.6°; pulse 120.—8.35: Temperature 102.4°; pulse 114.—10.30: Temperature 100°; pulse 110. By this time he was quite free from pain.

Feb. 24. Patient slept soundly and perspired very freely during the night. There was a little pain again in the right leg; bowels not open; tongue furred. Temperature 100°; pulse 108. At about 4 o'clock in the afternoon the powders were repeated for four doses. At 7 o'clock the temperature was 100.2°; pulse 110. At 10 o'clock the temperature was 99°; pulse 80.

25*th.* Patient passed a good night. Did not perspire much. Quite free from pain; bowels open. Still a slight murmur heard at apex. On being removed to the convalescent ward, he left the chair in which he was being wheeled, and ran to his bed. Appetite improving. Temperature 98.4°; pulse 84. Convalescence good.

Case 3. E. L., aged twenty-five, servant, had had two previous attacks of rheumatic fever. Ten days before admission she took cold. Her throat became sore, and she took to her bed on February 9th, and on the 13th she was attacked with severe pains in the arms and legs, accompanied by extreme tenderness; the knee-joints also became swollen and red, while the tongue was thickly furred and dry, and the bowels constipated.

On admission, on the 15th, all the above symptoms were well marked. Temperature 101.6°; pulse 104.—At 10 P. M., temperature 102°; pulse 96. A Dover's powder and an alkaline mixture were given, and an alum gargle was used for the throat.

Feb. 16. Patient did not sleep well, but perspired freely during the night; both legs and the left arm (especially at the wrist) painful, tender and swollen; throat not so sore. Temperature 100.7°; pulse 100.—1.45 P. M.: Salicylic acid ordered in twenty-grain doses every hour for six hours, and an alkaline spray to throat.—2.45: Temperature 101.6°; pulse 100.—4.40: Temperature 100°; pulse 92.—6.20: Temperature 100°; pulse 90.—7.40: Temperature 100.2°; pulse 96.—10.30: Patient in very little pain; throat easier since the use of spray. Inclined to sleep.

17*th.* Patient slept well and perspired freely in the night; pain had left all parts except the wrist, but the limbs still felt stiff. Temperature 100°; pulse 96.

18*th.* Throat quite well; tongue cleaning; patient stated that she has no pain whatever; had a good night's sleep; bowels not open. Temperature 99.4°; pulse 88.

19*th.* Patient slept well; no pain or stiffness; less perspiration; appetite improving; urine normal, sp. gr. 1030. Castor oil ordered on account of the confined state of bowels. Temperature 99.2°; pulse 84.

22*d.* Patient has continued free from pain since the 19th, but the temperature was not quite normal until this morning. Temperature 98.4°; pulse 80.

23*d.* Patient not quite so well; complained of a severe headache, and also of feeling sick. Bowels constipated. Temperature 99.6°; pulse 100. Citrate of iron and quinine ordered to be given three times a day.

27*th.* Some improvement till the afternoon of the 26th, when a decided relapse took place, with pain, swelling, and redness of the wrist. Tongue thickly coated and dry. Temperature 101.4°; pulse 98. Salicylic acid was repeated in twenty-grain doses every hour for six hours.

28*th.* Much better. Pain in wrist quite gone; perspired well after powders. Temperature 99.8°; pulse 90.

March 1. Patient not quite so well again. Complained of some pain in the left wrist, which appeared somewhat swollen, and was painful to the touch. Temperature 99.8°; pulse 94. Appetite very poor. The salicylic acid was repeated in the evening in the same dose as before, but only for three hours. The patient slept well, and next morning she was quite free from pain. Bowels open: appetite not so good. Temperature 98.4°; pulse 84. Patient continued to improve, and left hospital quite well on the 10th.

CASE 4. J. C., aged nineteen, general servant, fell ill about a month before admission, with some pain in the shoulder and right elbow. When admitted on Feb. 28th she was suffering from well-marked symptoms of rheumatic fever. The right arm was painful, and the wrist greatly swollen, red, and very tender. There was also some tenderness in lower extremities. The tongue was dry and furred. Temperature 102.8°; pulse 108; respiration 28. A loud friction-sound, intensified by pressure of the stethoscope, was audible. Six powders of salicylic acid, twenty grains each, ordered to be taken, one every hour. After the first powder the pain became much easier, but the temperature remained the same.—9 P. M.: Temperature 102.8°; pulse 110.—10.30: Temperature 102.4°; pulse 108.—11.45: Temperature 101.8°; pulse 112.

Feb. 29. Had a good night; perspired freely; was in very little pain; appetite improving. Continue broth diet. 8 A. M.: Temperature 99.8°; pulse 96.—8 P. M.: Temperature 100.8°; pulse 104. 10 P. M.: Temperature 101.8°; pulse 108. Powders repeated for three hours. —11 P. M.: Temperature 100.2°; pulse 98.—12.10 A. M.: Temperature 98.6°; pulse 92.

March 1. Patient had slept soundly, and felt better; was in no pain, but there was some stiffness about the joints. Temperature 98.8°; pulse 96.—5 P. M.: A slight return of pain in wrist, so that the powders were repeated for four hours. Temperature 98.8°; pulse 84.

2*d.* Had a good night's rest, and was quite free from pain. There was a soft mitral systolic murmur heard at apex; skin moist; tongue clean; bowels open; appetite improving. Temperature 98.4°; pulse 68.

8*th.* Convalescence went on well, patient feeling stronger daily. Was discharged a few days afterwards, temperature having been normal for over a week.

Remarks by Dr. BROADBENT.—The cases reported speak for themselves, but it may be stated that they were all well-marked examples of acute rheumatism, and that two of them were of more than average severity. The results of the treatment of rheumatic fever by salicylic acid in the practice of Stricker, of Berlin, were so remarkable that the earliest opportunity was taken of bringing the drug to the test of experience. The mode of administration recommended by Stricker is that twenty to thirty grains be given every hour for six doses, but at the first trial at St. Mary's only seven grains and a half were given at each of the six hours, simply suspended in water. No bad effects being observed, the dose was increased. It was impossible not to be astonished with the effects, and notwithstanding the many disillusions experience in medicine brings, not a few of which have been furnished by acute rheumatism, I should not do justice to my conviction were I not to say that apparently we have in salicylic acid, as Dr. Maclagan has said in his communication, a remedy for rheumatic fever comparable to quinine as a remedy for ague. According to present experience rheumatic fever when treated by this drug is an affair of two or three days. The disease is common enough, and its usual course sufficiently well known, so that no long time will be required to establish some definite conclusion, and to bring out any possible injurious effects. The only complaint hitherto made of the acid is that it is hot and irritating to the throat; given in milk, vomiting has been produced.

Careful examination of the effects on the pulse, temperature, urine, etc., will no doubt yield important information. Mr. Sworder, who has watched the cases very closely, states that the temperature invariably rises for a short time after the administration of the first dose, but the observations recorded in the careful notes taken at short intervals by him and Mr. Gawith show a gradual fall both of temperature and pulse rate. No sphygmographic observations were made. Relief from pain was always quickly obtained, and, as a rule, the patients slept well, no opiate being required; as a rule, again, there was very free perspiration, but this of course is common in acute rheumatism. —*Lancet*, April 8, 1876.

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Idiopathic Anæmia.—L. E., aged twenty-one, a clerk, was admitted into Guy's Hospital under the care of Dr. HABERSHON, on January 28. Since childhood he has had very fair health, though always rather thin and pale, and unable to take vigorous exercise. For some years has been liable to occasional slight attacks of epistaxis. His two sisters have suffered at the same age as his from symptoms said to be somewhat like the present illness. Patient states that the present illness commenced in the first week of last December, and that it appeared to have had a sudden starting-point from a pain in his left hip while out at a party. Since then he has been laid up at home. During the last six weeks he has suffered from aching and shifting pains in his thighs and back, which, however, were never very acute. He has had three slight attacks of epistaxis during the same period. He has also been troubled two or three times lately with a suffocative feeling in his chest. His appetite has not failed him as yet. He has never noticed any blood in his motions or urine; the motions have not been unusually dark.

State on Admission.—Patient is five feet ten inches in height, well developed and proportioned, though slightly built; thin; extremely pale, without being of either a greenish or earthen hue. Is hardly able to stand from extreme weakness; lies on his back; no cough or dyspnœa; appetite good; no vomiting; bowels regular, feces natural. Hepatic dulness increased. Lung region resonant; breath-sounds natural; cardiac impulse diffused; cardiac area not increased; sounds clear; no bruit; pulse 138, small and compressible, regular. There is a pulsation all over the epigastric angle, most marked to the left of the middle line. A loud systolic bruit is heard all over the epigastrium with the lightest application of the stethoscope, but it is not heard with the unaided ear. Heart-sounds are heard behind, and especially well over the lower left intercostal spaces, where a diffused impulse is observed, which is continuous round the side of the chest with that in the epigastrium. Loud *bruit de diable* on each side of neck. Urine loaded with lithates, but otherwise normal. Temperature 100.8°.

January 29. Temperature 99°; pulse 110; respiration 18. Has saturated two pocket-handkerchiefs with blood, which seems very poor in colouring matter.

30*th.* Temperature 99.5°; pulse 120; respirations 20. Fainted when he got up to have his bed made. Evening: Temperature 100.4°; pulse 116; respirations 24.

February 3. Patient says that he feels much better to-day. Was ordered the following mixture: ℞. Ferri et ammon. citr. gr. x, spt. ammon. aromat. ♏xx, spt. ætheris chlor. ♏x, ex aquâ ℥ss, ter dies.

5*th.* Morning: Temperature 102.4°; pulse 130. He says he feels very well this morning; he did not feel faint on standing up. Evening: Temperature 100.6°; pulse 134.

6*th.* Morning: Temperature 98.6°; pulse 126; respirations 22. More epistaxis.

8*th.* Reports himself as feeling very ill to-day. There is much retching and sickness.

10*th.* Temperature 98.4°. Has another attack of sickness. Systolic bruit audible all over the cardiac region, loudest on right side of sternum.

11*th.* A dense London fog. Patient is much worse to-day; was very sick in the night; takes very little nourishment; is very thirsty. He says he feels giddy and drowsy; he answers questions with hesitation and difficulty. Tongue brown and quite dry. Pulsation in epigastrium is much more forcible. 2 P. M.: Is quite unconscious, tossing himself about. Temperature 97.5°; respirations 40; pulse scarcely perceptible. 3 P. M.: About six ounces of blood drawn from the vein of a friend defibrinated, and kept warm by means of hot water outside the vessel containing it, was transfused into patient's right basilic vein. The only effect of the operation was to make him breathe a little deeper, but he sank half an hour afterwards.

A post-mortem examination was made by Dr. Hilton Fagge. No glandular enlargement was found. The liver was healthy, and weighed seventy ounces. The spleen was firm, and weighed ten ounces. There was fatty degeneration of the musculi papillares of the left ventricle of the heart, and in left side of septum ventriculorum. There were ecchymoses on the visceral pericardium, especially on the left side; ecchymosis also on endocardium of left ventricle; the valves were healthy. The kidneys contained in their cortex small white bodies, mostly like spots, near the surface, but one was as large as a pea and vascular. Examined microscopically, it was found that fibrous tissue predominated in these little tumours. The brain and lungs were healthy.—*Med. Times and Gaz.*, March 4, 1876.

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Acute Necrosis of the Tibia, in which the Diseased Shaft of the Bone was removed by Resection, leaving the Periosteum; Reproduction of Shaft.—Two instructive cases of this are reported in the *Lancet* (March 11th), which were treated by Prof. Spence in the wards of the Edinburgh Royal Infirmary, and which show the remarkable reparative power of the periosteum. We quote one of them:—

R. H., æt. 10, was admitted on the 27th March, 1875, suffering from acute necrosis of right tibia. Three weeks before admission the patient had been kicked by a horse on his right shin. The leg subsequently became swollen and painful, and two abscesses formed in front of the tibia. These were opened a week before admission, but as profuse hemorrhage occurred from the periosteal vessels, he was sent into the infirmary.

On admission the tibia was seen white and bare through the incision which had been made to evacuate the abscess. From these openings there was a copious discharge of pus. The boy was very weak and anæmic from loss of blood. His pulse was weak and rapid. Operative interference was considered unadvisable at the time, owing to the exhausted state of the patient. He was accordingly put upon a tonic course for some days, and a stimulating lotion was applied to the incisions.

On the 5th of April, the patient being put under the influence of chloroform, and Esmarch's apparatus applied, Professor Spence connected the two previous incisions, thus exposing the whole length of the shaft of the bone, which was bare in its entire extent. The periosteum all round the bone was then separated by means of a periosteum scraper, and the entire shaft of the bone was removed, after resection above and below with the chain saw. Scarcely any blood was lost.

The wound was stuffed with lint soaked in carbolized oil. A posterior splint was applied, and the limb slung.

Next day short lateral splints were applied in addition, so as to give shape to the limb. The stuffing was removed, and the wound was dressed with a many-tailed bandage of lint soaked in a solution of boracic acid.

The patient went on well, and by the beginning of June the new bone thrown out from the periosteum felt hard and firm, and had the same shape as the normal tibia. The wound had by that time cicatrized over in the centre. Patient was ordered ivory-dust in form of jelly. The upper and lower parts of the wound healed slowly, and small spicules of bone were occasionally removed from the epiphyses.

The patient was discharged on August 8th. The bone was then very strong, and the tibial ridge only deficient at the upper part, where the periosteum had ulcerated previous to admission. A posterior splint of poroplastic felt was directed to be worn for some months so as to obviate any risk of the new bone yielding under the weight of the body.

Prof. Spence, in remarking on these cases, observes that they are especially instructive as showing the advantages of resection in certain cases of acute necrosis. I find this method sometimes spoken of as if shortening the period of treatment were its object. It could scarcely be advocated on that ground. Its real advantages are—(1st) The early removal of a diseased texture which is injuriously affecting the health and keeping up irritative fever. (2d) By removal of the diseased shaft to diminish the risk of neighbouring joints becoming affected, thus necessitating amputation under most unfavourable conditions. (3d) Obviating the risk of repeated hemorrhages from ulceration of large periosteal vessels. Whilst the result of these and other similar cases shows that the removal of the diseased bone is speedily followed by relief of the constitutional disturbance, and that we can trust to reproduction of bone from the periosteum left.

The two cases were testing cases for the operation, as both patients were extremely debilitated; and in the case of the girl, the sloughing of the integument and periosteum over the front of the tibia, and the subsequent necrosis of the fibula, made me very doubtful what might be the result.

Conservative Surgery.—An extremely rare, if not altogether a new, operation was performed at the Middlesex Hospital on Wednesday, March 8th, by Mr. MORRIS.

A woman about thirty-three years of age had for fourteen months been suffering from a myeloid tumour of quite the lower end of the radius, which gradually expanded the bone until only a thin shell of it remained. It extended upwards along the forearm for about 4 inches, and was slightly connected with the periosteum of the ulna. As the patient refused to undergo any operation by which her hand would be removed, and as all the soft structures appeared to pass over the tumour, Mr. Morris determined to remove the lower two-thirds of the radius, and two or three inches of the lower end of the ulna. This was done successfully without dividing any trunk nerve or artery, except the anterior interosseous, at their lower end: and the only tendons cut were those of the supinator longus and the pronator radii teres at their points of insertion into the radius. The guide to reaching the radius, and thus to lifting aside the soft structures from the tumour, was the radial nerve. This was found as it passes on to the back of the forearm between the supinator longus and the long radial extensor of the wrist, and then those muscles were separated up as high as the lower border of the supinator brevis; the nerve being kept, with the extensor muscles, on the back of the forearm, and the long supinator being raised with the muscles on the flexor aspect.

A portion of the lower end of the ulna was removed for a further reason than because of its connection with the tumour, as it is expected that there will be less deflection of the hand to the radial side than must necessarily have been the case had the ulna been left untouched. The patient has done uninterruptedly well, so far, since the operation.

The application of a ligature to the anterior interosseous artery could be effected without much difficulty, Mr. Morris thinks, by employing the same incision and guide as were used in this case.—*Lancet*, March 18, 1876.

MEDICAL NEWS.

ORIGINAL ARTICLES.

How to Preserve and Stain for Microscopical use some Elements of the Urine and other Fluids. By CHRISTOPHER JOHNSTON, M.D., of Baltimore, Md.

After urine containing organic elements has stood undisturbed in a vial sufficiently long for a deposit to accumulate, with a pipette draw off all supernatant fluid. To the sedimentary layer add half its volume of a quarter of one per cent. of alcoholic solution of mageuta or Nicholson's blue. Shake once or twice, cork tightly, and label.

If the specimen be not absolutely fresh, add to the above one-third of its bulk of alcohol.

Many fluids, such as the contents of ovarian and other cysts, or fluids associated with cancerous disease, may be preserved in the same way.

In concentrated urine the constituents of deposits are relatively numerous; and as all organic granules, epithelium, and recent cases, are distinctly stained, they are very conspicuous and easily found. Old hyaline casts take colour indifferently and slowly, and appear of a very pale hue. In Bright's disease new attacks yield easily stainable casts, which, even if not mixed with blood and other signs of acuteness, will, by the aniline, be readily distinguishable from casts the result of an ancient condition.

With a dip tube place a drop of the sediment, or fluid if there be no sediment, upon a slide, adjust the cover, and while the particles are vividly coloured the field appears to be white.

Urine and other fluids so prepared may be set aside for future use, studied at leisure, or sent unchanged to a distance.

Baltimore, April 6, 1876.

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Case of nearly Fatal Result from the Accumulation in the Stomach of Carbonic Acid Gas after Swallowing Citric Acid and Bicarbonate of Potassa. By Geo. W. Christian, M.D., of Weimer, Texas.

A young man of vigorous constitution had taken a mercurial purge for relief from a bilious attack. On the morning of the second day after, he took a glass prepared fresh with acid. citric. ʒiv, pot. bicarbonat. ʒvss, aqua ℥viij. After swallowing this draught, he complained of a fulness and uneasy sensation about the chest.

When I saw him, not more than thirty minutes afterwards, he was complaining of great pain about the stomach, and that "he could not get his breath," and could not swallow. He was making violent efforts at inspiration without being able to accomplish it. His face was livid, eyes glaring, pulse feeble. In less than one minute after I got to him, he became comatose, his limbs rigid and cold, and pulseless at the wrist.

I had forced down him a large quantity of ipecac just before he had grown entirely insensible, and aided the vomiting by tickling his throat with the finger.

I had the upper and lower extremities vigorously rubbed with capsicum and mustard. Kept up the tickling in the throat until free vomiting occurred, which took place in from three to five minutes. After free emesis the spasm relaxed, respiration was free and easy, and consciousness returned in two or three minutes more. After vomiting, I gave lime-water to neutralize any acid that might remain. The recovery was perfect and rapid; in an hour he was up attending to his business.

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Acute Rheumatism treated with Salicylic Acid. By Wm. F. Whyte, M.D., of Watertown, Wis.

Saw Lizzie P—— in the evening of March 12th. She had been sick three days. Skin hot, tongue coated, pulse 115, temperature 102½°. Left wrist and both ankles swollen, slightly reddened, and could be moved only with great pain. Complains also of pain in her knees. Prescribed alkalies, and Dover's powder to secure rest. On the evening of March 13th, general condition as before; pulse 120, temperature 104°. Both wrists and knees swollen, and complains of pain in the hip-joints. Salicylic acid was prescribed, gr. vijss, every hour when awake. March 14th, evening, found her comparatively free from pain, and swelling in the affected joints considerably diminished. Pulse 110, temperature 102½°. Saw the patient again on the morning of the 16th. She had walked across the room, was entirely free from pain, and the swelling in the affected joints had disappeared. Pulse 80, temperature 99°. Duration of treatment with salicylic acid sixty hours. Amount taken about 3 drachms.

DOMESTIC INTELLIGENCE.

Supra-pubic Lithotomy.—Dr. Guido Bell relates (*The American Practitioner*, March, 1876) the following case of this:—

T. N., a delicate boy, three years and a half old, had, when three years old, a vesical calculus, the size of a pea, removed; a month after, again had symptoms of a stone in the bladder.

On the twenty-fourth of October, 1875, I performed supra-pubic lithotomy, the patient being completely under the influence of chloroform. The stone, which was the size of a large bean, and having abundant crystals on its surface, was removed with the index finger; the incision in the bladder was closed by a single silk suture, silk sutures were used for the abdominal incision, and an ointment, containing carbolic acid and morphia, applied externally to the wound.

In two hours some bloody urine was passed by the urethra, and the patient slept moderately well the first night succeeding the operation. On the twenty-fifth, considerable fever and nervousness; on the twenty-sixth, the superficial sutures were removed, and the wound emitted a decidedly gangrenous odour; and on the twenty-ninth, urine escaped freely through the now opened wound.

On November first, the gaping edges of the wound were brought together with adhesive plaster, and soon after the urine resumed its natural channel. At the end of a month a small fistula existed; but it healed spontaneously by December 25th, and the patient is now quite well.

Conception within forty hours after Abortion.—A remarkable case of this is related by Dr. JAS. R. SPARKMAN, *Charleston Med. Journ. and Review*, April, 1876. The miscarriage was not followed by any hemorrhage, and the patient, feeling quite well, submitted twice to her husband's advances, who was about to leave home for some time about forty hours after her abortion. She was delivered two hundred and seventy-eight days after this congress, of a fully developed infant weighing ten pounds.

International Medical Congress, Philadelphia, 1876.—The following additional subject for discussion in the Section of Otology has been announced:—

4th Question. What is the best mode of determining the hearing of school-children, and how should partially deaf children be instructed—in mixed classes with those who hear well, or in separate classes where due allowance will be made for their defective hearing? Reporter, Clarence J. Blake, M.D., Instructor in Otology in Harvard University.

Charles H. Burnett, M.D., Surgeon to Philadelphia Infirmary for Diseases of the Ear, has been selected as Reporter of the 2d Question, *vice* Dr. Blake.

All the reporters, at the close of their opening remarks, will sum up the views expressed therein in a series of conclusions subject to modification, which, at the end of the debate, will be voted upon separately and then reported to the Congress in general meeting for confirmation.

The *Lancet* (April 15, 1876), in calling attention to the programme of the Congress, says, "The questions that will be submitted are well calculated to be provocative of discussion from their debatable character, or the novel and fresh or interesting points involved in them." . . . And concludes by expressing the hope that many Britons will "be present at what promises to be a very important and most interesting Medical Congress."

The following distinguished foreigners have already notified the Commission of their intention of attending the Congress: Prof. Stromeyer, of Hanover; Prof. Jaccoud, of Paris; Prof. Lebert, of Breslau; Prof. Lazarewitch, of Kharkoff, Russia; Mr. Lauder Brunton, of London; and Mr. Jolliffe Tufnell, of Dublin.

The Iowa State Medical Society has elected the following delegates to the Congress: Drs. J. C. Hughes, of Keokuk; J. W. Smith, of Charles City; A. G. Field, of Des Moines; S. B. Thrall, of Ottumwa; Wm. Watson, of Dubuque; E. W. Clark, of Grinnell; P. J. Farnsworth, of Clinton; D. S. Fairchild, of Ames; and J. M. Emmert, of Atlantic.

The Medico-Chirurgical Society of Montreal has appointed the following delegates: Drs. Godfrey, Howard, Fenwick, Hingston, Trenholme, Ross, and Bell.

International Congress of Ophthalmology.—This Congress will be formally opened at noon on Tuesday, the twelfth day of September, 1876, at Chickering Hall, Fifth Avenue, New York. The committee charged with the preliminary arrangements consists of Drs. C. R. Agnew, H. D. Noyes, and D. B. St. John Roosa.

Kentucky State Medical Society.—This society held its annual meeting at Hopkinsville, on the 4th of April. The following officers were elected for the ensuing year: President, R. W. Gaines, of Hopkinsville; Vice Presidents, Dr. C. H. Todd, of Owensboro, and L. S. McMurtry, of Danville; Recording Secretary, Dr. J. H. Letcher, of Henderson.

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Library of the College of Physicians of Philadelphia.—We are gratified in being able to state that this valuable library continues steadily to increase. The number of volumes added during the past year was *one thousand and seventy-nine*, of which number *four hundred and forty-six* were contributed to the Lewis Library by its munificent founder. The whole number of volumes in the library now amounts to considerably over *nineteen thousand.*

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University of Pennsylvania —The Board of Trustees of this Institution have for some time had under consideration the subject of improving the system of medical education in the school under their control.

On the 7th of December, 1875, a resolution was passed, "That a special Committee of eight Trustees be appointed to consider in what respects the organization and curriculum of studies may be with advantage modified in the interests of the Medical Department and of Medical Education, and, if practicable, to report a plan for reorganizing said Department."

Since the date of its appointment, this Committee, which included the medical gentlemen of the Board, namely, Drs. Geo. B. Wood, J. Rodman Paul, and S. Weir Mitchell, has been actively engaged in obtaining all the information possible to enable it to reach a definite conclusion as to the course to be recommended for adoption.

The Committee in their Report, which was presented on the 28th of March, state: "A careful review of the subject leads the Committee to the opinion that the Medical Department should ultimately be reorganized upon the following basis:—

"The time of instruction should be extended to three years; the diploma being granted after examination at the end of the third year.

"The annual course of instruction should be extended.

"The instruction should be graded substantially as follows:—

"*In the First Year.*—Anatomy; with constant dissection; physiology; inorganic chemistry; materia medica; pathology; histology.

"*In the Second Year.*—Theory and practice of medicine; theory and practice of surgery; theory and practice of obstetrics; therapeutics; organic chemistry; physiology; anatomy; all the clinical branches.

"*In the Third Year.*—The same studies as in the second year, but more advanced, and with the clinical branches and laboratory work predominating.

"There should be weekly examinations by the several professors on the lectures in their respective branches, and examinations at the end of each course on the studies pursued during the course, for the purpose of testing the qualifications of the student for admission to the next course.

"Finally, when the proper time comes, examination for matriculation should be required, in order that the class may be somewhat more evenly prepared to profit by the instruction of the first year.

"The fees of the students under such a system should be paid to the Treasurer of the University, the expenses of the school should be borne by the Board of Trustees, and the professors should be paid fixed salaries.

"A graded course offers more advantages to the student than the course as at present arranged, because it introduces the beginner to the elementary branches of the science first, and, as his habits of thought improve and his acquaintance with the subject increases, the more difficult and complicated parts are presented to him. This method of teaching is so universally adopted in other branches of education that it seems hardly necessary to attempt to bring forward any arguments in its favour."

"The Committee recognizes perfectly the fact that any change of system which might temporarily or permanently diminish the size of the classes, by weeding out those students who are incompetent to enter or to take an advanced course, and those who are unable or unwilling to spend the additional time and money which it would require, would have to be supported by an endowment or a guarantee fund, and it is therefore proposed that at the present moment only such changes be made as will not affect the relations of the students to the school, but will serve to make the internal organization of the department more complete."

"The Committee considers that the Medical Faculty and the Hospital Staff should be in some way united, so as to secure that harmony of action which is necessary to entire success.

"All the chairs of the Hospital Staff, however, not being of equal importance in the scheme of instruction, the Committee recommends that the following professors of the Hospital Staff be added to the Medical Faculty:—

"The Clinical Professor of Surgery.

"The Clinical Professor of Medicine.

"The Clinical Professor of Diseases of Women and Children, and

"The Professor of Pathological Anatomy and Histology, with the title of Professor of General Pathology and Morbid Anatomy."

From correspondence with the Medical Faculty the Committee learned that the establishment of the foregoing professorships was desirable.

The Report was laid over for consideration.

The two accompanying resolutions were adopted by the Board as recommended by the Committee.

"*Resolved*, There be added to the present Faculty of Medicine of the University of Pennsylvania the following Professorships of the Hospital Staff as they are at present filled.

"The Professorship of Clinical Surgery (Dr. Neill).

"The Professorship of Clinical Medicine (Dr. Pepper).

"The Clinical Professorship of the Diseases of Women and Children (Dr. Goodell).

"And the Professorship of Pathological Anatomy and Histology, with the change of title to that of Professorship of General Pathology and Morbid Anatomy (Dr. Tyson).

"*Whereas*, Efforts are now being made to raise an endowment fund for the Medical Department,

"*Resolved*, That out of the income of such endowment fund the incumbents of these chairs shall be compensated in such manner as may be provided for by the Board of Trustees; and that in the event of there being no such fund, the said chairs shall, until it be raised, have no pecuniary claim on the Board."

We congratulate the University and the advocates of a higher medical education on this first step in the improvement of the curriculum of the oldest medical school in the United States.

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Medical Graduates in 1876 (continued from p. 57).

Missouri Medical College . .	67
St. Louis Medical College . .	46
Indiana Medical College . .	32
Medical College of Virginia .	17
University of California . . .	13
Medical College of the Pacific .	11
Miami Medical College . . .	50
Columbian University (Washington, D. C.)	12
Georgetown University . . .	13
Medical College of the State of South Carolina	27

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Wills Ophthalmic Hospital.—This Hospital, the proper and official title of which is "Wills Hospital for the Relief of the Indigent Blind and Lame," has now been diffusing its benefits for upwards of forty years. From the report for the year 1875 we are pleased to learn that during that period its capacity for usefulness has been enlarged by the erection of two pavilion wards with a capacity of forty beds, thus doubling the capacity of the Hospital. During the past year 3922 have been treated, of which 338 were house-patients, and 3584 were out-patients. 809 operations were performed, of which 81 were for cataract, and 55 for strabismus.

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Philadelphia Infirmary for the Diseases of the Ear.—From the second report of this institution we learn that during the year ending Dec. 1, 1875, 350 patients availed themselves of this charity. Dr.

CHARLES H. BURNETT is the Surgeon in Charge. The Infirmary is located at present at No. 43 South 17th St. It is open daily from 12 to 1 o'clock.

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German Eye, Ear and Throat Infirmary.—This Institution, which was reorganized in March last, is situated at the S. E. corner of Fifth and Green Sts. The Surgeons in Charge are F. D. Castle, M.D., and C. Seiler, M.D. It is open daily (Sundays excepted) from 3 to 4 P. M., for the gratuitous treatment of indigent persons.

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Dispensary for Skin Diseases.—From the fifth report of this Institution, now on our table, we learn that 371 cases were treated during the past year. Dr. LOUIS A. DUHRING is the Physician in Charge, and Dr. Arthur Van Hartingen the Assistant Physician. This dispensary is open daily, Sundays excepted, at 11 A. M., at 216 South 11th St.

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Convalescent Hospital. — The elegant Hotel at West Point, well-known as Cozzens', has been purchased by a lady of New York, and presented to the Society of the N. Y. Hospital, to be used as a convalescent hospital.

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Micro-Photographs in Histology.—J. H. Coates & Co., of Philadelphia, propose to publish photographs in Histology, normal and pathological, by CARL SEILER, M.D., in conjunction with J. Gibbons Hunt, M.D., and Jos. G. Richardson, M.D.

This publication is intended to replace the microscope, as far as is possible, for those physicians who have neither opportunity nor leisure to make observations with the instrument for themselves; and also to furnish microscopists, for comparison, correct representations of typical specimens in the domain of normal and pathological histology.

As the pictures are obtained directly from the microscopic objects by means of photography, and printed from the negative by a reliable mechanical process, they have the great advantage of being faithful copies of the pictures formed by the lens, and there is nothing produced that is not actually visible in the instrument, thus avoiding the diagramatic character and the subjective colouring which is so frequently found in drawings made by means of the camera lucida. In fact, the illustrations used in the lecture-room, and found in books, are idealized so much as rarely to give an exact impression of the specimen as it really exists.

The photographs are to be carefully prepared by Dr. Seiler, and will be accompanied by a few pages of text, describing each plate, under the supervision of Drs. Hunt and Richardson.

The work will be issued in monthly numbers, each containing at least four plates with descriptive letter-press. Subscription price six dollars per annum.

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Corrigendum.—We beg to call the attention of our readers to the fact that in Dr. Gross's Century of Surgery in America (*American Journal of the Medical Sciences*, April, 1876) the name of Dr. J. M. Carnochan was incorrectly placed on the list of recently deceased surgeons of eminence. The author of the article was led into that mistake by a short sketch of Dr. Carnochan which appeared in the new edition of *Johnson's New Universal Cyclopædia*, where it is stated that Dr. C. died in 1872. We take pleasure in informing our readers that Dr. Carnochan is still living and is engaged in the active pursuit of his profession.

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The Stromeyer Jubilee.—The friends of Professor Stromeyer, as a token of their appreciation of the valuable services which he has rendered to scientific surgery, met at Hanover early last month, to celebrate the fiftieth anniversary of his entrance into the medical profession. A short time before this event, a letter was received from two of his London friends, Dr. W. J. Little and Mr. W. Mac Cormac, asking the surgeons of Philadelphia to unite with their European brethren in raising funds, in the sum of ten dollars each, towards a fund for a marble bust of the great surgeon, to be presented to him on the occasion. In compliance with the wishes thus expressed, ten gentlemen promptly sent their names, with their contributions, to the agent in charge of the matter. From a letter just received from W. Mac Cormac, Esq., we learn that a copy of the bust in plaster of Paris will be sent for one of the public institutions in this city.

In Memoriam.—At a meeting of the Pathological Society of Philadelphia, held on Thursday evening, April 13, 1876, the death of Dr. Jno. S. Parry having been announced by the Secretary, it was unanimously—

Resolved, That in the untimely death of our late Vice-President, Dr. Jno. S. Parry, we have to deplore the loss of a valued officer of the Society, and of a colleague whose zealous devotion to the promotion of pathological science and whose sterling personal qualities have secured the lasting admiration and regard of all his fellow members.

That the Secretary be requested to transmit a copy of this resolution to the family of Dr. Parry, and to have it published in the medical journals of this city.

OBITUARY RECORD.—Died, of Bright's disease, at New Orleans, Feb. 24, Frank Hawthorn, M.D., Professor of Diseases of Women and Children in the New Orleans School of Medicine.

—— at Sacramento, Cal., Feb. 13, of typhoid pneumonia, aged 68 years, Thos. M. Logan, M.D., Prof. of Hygiene in the Medical Department of the University of California; Secretary of the State Board of Health, etc. etc.

FOREIGN INTELLIGENCE.

Treatment of Acute Rheumatism by Salicin.—Dr. T. MADAGAN terminates an interesting report (*Lancet*, March 4 and 11, 1876) of seven cases of acute rheumatism successfully treated with salicin with the following conclusions:—

"1. We have in salicin a valuable remedy in the treatment of acute rheumatism.

"2. The more acute the case, the more marked the benefit produced.

"3. In acute cases, its beneficial action is generally apparent within twenty-four, always within forty-eight, hours of its administration in sufficient dose.

"4. Given thus at the commencement of the attack, it seems sometimes to arrest the course of the malady as effectively as quinine cures an ague, or ipecacuanha a dysentery.

"5. The relief of pain is always one of the earliest effects produced.

"6. In acute cases, relief of pain and a fall of temperature generally occur simultaneously.

"7. In subacute cases, the pain is sometimes decidedly relieved before the temperature begins to fall; this is especially the case when, as is frequently observed in those of nervous temperament, the pain is proportionally greater than the abnormal rise of temperature.

"8. In chronic rheumatism, salicin sometimes does good where other remedies fail; but it also sometimes fails where others do good. . . . .

"The dose of salicin is from ten to thirty grains every two, three, or four hours, according to the severity of the case. Fifteen grains every three hours is a medium dose for an acute case. It is very possible that less might suffice; for I have not tried to find the minimum dose. It is very certain that a much larger dose may be given without producing discomfort.

"Salicin is not soluble to any useful extent; it is best administered as a powder mixed with a little cold water. It is a very pleasant bitter. I have never found the least inconvenience following its use."

Hyoscyamin in Chorea.—Dr. OULMONT has been very successful in five cases of chorea, treated by him with hyoscyamin in his wards of the Hôtel Dieu. In one case the patient was two months pregnant. Various drugs had failed, and notably bromide of potassium in doses of three drachms daily. Hyoscyamin was given in gradually increasing doses of from two to eight milligrammes daily. Amelioration was soon evident, and the case speedily got well.—*Lancet*, March 18, 1876.

The Ophthalmoscope in Injuries of the Head.—M. PANAS (*Gaz. Hebdom.*, Feb. 26), in a paper read at the Académie de Médecine, on the condition of the eye as observed by the ophthalmoscope after injuries of the brain, founded upon seven cases, five of which are accompanied by autopsies, comes to the following conclusions with respect to the stationary condition of the pupil: 1. The stasis of the pupil is often observed as a consequence of various traumatic lesions of the encephalon. 2. It is not always accompanied by visual disturbances; so that the fundus of the eye should always be examined with the ophthalmoscope, whether these exist or not. 3. According to the autopsies, this stasis seems to depend upon the infiltration of blood or serum into the sheath of the optic nerve, and not upon the cerebral lesion itself. 4. This stasis does not seem to indicate the particular variety or the gravity of the injury of the brain. 5. All that this stasis allows us to affirm is that it indicates the presence of a liquid effused into the membranes.—*Med. Times and Gaz.*, March 4, 1876.

Asthma.—Dr. J. W. ANDERSON records (*Glasgow Med. Journ.*, April, 1876) a peculiar case of asthma in which inspiration was accomplished with absolute freedom; the difficulty was solely in expiration.

Deaths from Chloroform.—A Liverpool dentist adds another name to the long list of cases of needless deaths. The chloroform was administered for the extraction of teeth, and a pliant jury in bringing in a verdict of "death from misadventure" absolved the administrator from all blame.—(See *Brit. Med. Journ.*, April 1, 1876.)

The same journal for the succeeding week reports another case at Leicester. Less than a drachm and a half of chloroform was administered altogether, and the heart's action was discovered before the operation to be perfectly healthy and with no murmur.

A New Plan for detecting Bile-pigment in the Urine.—For the clinical demonstration of the presence of bile-pigment in urine, Dr. ROSENBACH, of Jena (*Centralblatt Med. Wiss.*, No. 1, 1876), recommends the following methods as an improvement on those ordinarily employed: The urine is filtered through ordinary white filter-paper, by which means the latter is rendered of an intense yellow or brown tint. If a drop of slightly fuming concentrated nitric acid is now allowed to fall on the inner side of this prepared paper—that is to say, on the side which was turned towards the fluid—the spot which it touches becomes yellow, then yellowish-red, and at the edge of a beautiful violet tint; further out there forms an intensely blue ring, which passes over almost immediately into an emerald-green colour. It is best to use the paper in the moist state, without allowing it to dry after filtration. The play of colours produced by the acid is beautifully shown by allowing a drop to trickle down the inner surface of the filter, the reaction becoming more intense the nearer the acid gets to the apex of the cone. If the filter be allowed to dry and put aside for a few days, it is only necessary to moisten it with distilled water, and then to use a drop of acid, to obtain a characteristic play of colours. The reaction does not occur in highly coloured urines which are not icteric.—*Med. Times and Gaz.*, March 25, 1876.

The Mosaic Sanitary Code.—Last week, Dr. B. W. RICHARDSON delivered a lecture on "The Mosaic Sanitary Code and its Influence on the Vitality of the Jewish Race" to Jewish working men and their families, in the Jews' Infant School, Commercial Street, E.; Sir B. Ellis occupied the chair. The lecturer remarked that, many years ago, while engaged in an investigation into the cause and nature of the cholera epidemic, a statement was made that no Jew had died from cholera. The statement, though not strictly correct, was yet so near the truth that it struck his attention and that of others who were engaged in sanitary work. This, he said, led him to the study of the subject of the vitality of the Jews, and the result of his research had shown that, both on the Continent and in this country, Jews possessed a higher vitality than did the general community by whom they were surrounded. Tracing the causes for this greater longevity, the lecturer said he could not attach too much importance to the sanitary laws that obtained amongst the Jews, instancing those in regard to diet, cleanliness, and abstinence from strong drink. In fact, the Decalogue from beginning to end was one sanitary lesson, teaching them to subdue the passions which tormented the brain and distressed the spirit.

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Severe Accident caused by a Telegraph Wire.—A remarkable case of this, showing the danger which may arise from telegraph wires stretched on poles, is recorded in the *Med. Times and Gaz.* of March 13, last.

A severe storm in London blew down telegraph wires which stretched across the roadway leading to an omnibus yard. "Almost immediately afterwards an unfortunate hostler was driving an omnibus into the yard, and, being probably prevented by the heavy snow-storm from seeing the wire, he was caught by it under the chin, as it were in a loop, and, being unable to stop the horses, his throat was cut clean across as if by a knife, all the soft structures immediately above the hyoid bone being divided to the vertebræ. The wound then took an upward direction behind the ramus of the inferior maxillary bone on each side, and terminated at the base of the skull, the resistance of the bone being, it is believed, sufficiently great to break the wire. Death must have been instantaneous, as the large vessels in the neck were completely divided. Sir John Hawkshaw states in the *Times* that galvanized wire does not last more than a dozen years, and in all probability the first intimation of decay will be the falling of the wires upon passers-by; and the weight of the wires falling from such heights as those at which they are now so frequently suspended will generally be sufficient to kill or maim those upon whom they fall.

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Measurement of Light.—Mr. Crookes's most able experimental research on the conversion of light into motion, on which he lectured last Friday at the Royal Institution, has opened up a new field of physical investigation, and has an immediate application to medical science, which we hasten to point out. The influence of light upon the functions of life and health is very great; and it has long been a source of regret that there does not exist any accurate means of registering the amount of light falling upon any given spot. This defect will now be supplied by Mr. Crookes's photometric radiometer, which will register accurately all the variations in amount of light, and record every passing cloud. Such an instrument will, we apprehend, shortly become an indispensable addition to every set of meteorological apparatus, and will be highly useful to the physician and the climatologist. So quickly do scientific discoveries now-a-days fructify with result. Mr. Crookes was led to his present conclusions by the observation of an "anomaly of experiment," which he has investigated with a most admirable exactness and sagacity, and by the aid of a series of researches of singular beauty, and which will be memorable in the history of physical science.—*Brit. Med. Journ.*, Feb. 19, 1876.

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Portrait of Vesalius.—We find it stated (*Le Progres Médical*, Feb. 19, 1876) that a portrait of Vesalius painted in 1540 by Jean de Calcar has been discovered in the Louvre, Paris, where it has remained for upwards of 170 years unrecognized.

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Ovation to Prof. Robin.—The day after the election of Prof. Robin as senator, the large amphitheatre was crowded to the ceiling, and when he appeared to deliver his lecture he was received with "phrenetic" applause, which lasted several minutes, accompanied with the cries, "Vive Robin!" "Vive la République!" and most of all, "A bas Dupanloup!" When silence was obtained, the Professor exclaimed, amidst thunders of applause, "It is not me you applaud, it is the Republic!" At renewed cries of "A bas Dupanloup!" he added, "Attack no one, gentlemen, for that is the best mode of showing that we are really strong." He then went on to speak of the nervous system to a very diminished auditory. When he quitted the theatre, the manifestation was renewed outside; and as torches could not be obtained, the students (500 or 600 in number), amidst loud shouts, contented themselves with escorting the Professor towards his home. Finding their course, however, barred in one of the streets by a large squadron of police, they were obliged to disperse.—*Union Méd.*, Feb. 5. [Three provincial medical men have also been elected senators, and Dr. Testelin was one of the life-senators elected by the National Assembly.]—*Med. Times and Gaz.*, Feb. 12.

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International Medical Congress, Geneva, 1877.—The International Medical Congress of 1877, of which Prof. CARL VOGT is to be President, will open on the 9th of September at Geneva, and will last a week. French is to be the official language. Dr. Prevost, of Geneva, is the General Secretary.

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Royal College of Physicians.—Dr. RISDON BENNETT has been elected President of this College in place of Sir George Burrowes, who declined a re-election.

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OBITUARY RECORD.—Died, March 15th, at his residence, at Bitterne, Professor E. A. PARKES, of the Netley Military Medical School. Professor Parkes' eminent services in the Crimean hospitals during the Russian war attracted the attention of the Government, and, at their solicitation, he resigned his office at University College Hospital, and his eminent position as a physician of the first rank in civil life, to assist in the organization of the great medical school and hospital at Netley for training young medical officers on their entry into the military service. Lord Herbert placed justly great reliance on his judgment, and all successive administrations have known how to appreciate his large scientific knowledge of all that belongs to military hygiene and the preservation of the health of troops in the barrack, the camp, and the field. His great work on *Hygiene*, and his valuable annual reports, have long been scientific standards. As a member of the Commission on Equipments, and as an adviser of the government on all matters of clothing, dietary, ventilation, and water-supply, he has contributed more, perhaps, than any other man in our day to that notable diminution in military mortality which is so great a source of congratulation to economists and to the nation at large. His wisdom, moderation, and gentleness of character were such as to secure to him the confidence and the affection of all with whom he came into contact. His loss is great to the whole country and to every branch of the profession. It will be most deeply felt by the host of friends and pupils to whom his unvarying sweetness of character and almost womanly kindness had endeared him, while his great attainments and pure spirit of self-sacrifice commanded their deep respect.—*Brit. Med. Journ.*, March 18, 1876.

—— at Ixelles (Belgium), March 17, 1876, aged 76 years, JEAN FRANCOIS VLEMINCKX, Member of the Chamber of Representatives, Inspector of Health of the Army, President of the Royal Academy of Medicine of Belgium, Vice-President of the Superior Council of Public Health, President of the late International Medical Congress at Brussels, etc. etc. His contributions to medical science were numerous and on various subjects.

—— at Brighton, March 5th, in the 63d year of his age, Sir JOHN CORDY BURROWS, M.D., President elect of the British Medical Association.

—— at London, March 29th, HENRY LETHEBY, M.D., the well-known chemist, toxicologist, and sanitarian.

—— at London, April 15th, of acute pleuro-pneumonia, Mr. CAMPBELL DE MORGAN, F.R.S., honoured and respected by all who knew him. He was notable for great independence of character, a chivalric sense of professional honour, and intellectual energy.

—— in Birmingham, aged 75, WILLIAM SANDS COX, F.R.S., the founder of the Birmingham School of Medicine, a skilful surgeon, an active philanthropist, and an earnest promotor of medical education.

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This little book has already done good service, and we are glad to find it has passed to a third edition. Its present form is no mere reprint. A cursory glance will suffice to show that the author has spared neither trouble nor expense to bring the work up to the requirements of the day. Old wood-cuts are in many instances replaced by new, besides which a large number of illustrations entirely new, are added. The text also has been changed in many places and considerably augmented, and has been brought, on the whole, well up to the results of recent research.—*The Dublin Journal of Medical Science*, Jan. 1876.

The author of this valuable little work is to be congratulated on the demand for it that has already called for a third edition. It affords gratifying testimony to its value and popularity as a text-book. It possesses further all those qualities which render such a work popular among students. It is written in clear and concise language, it is confined almost entirely to statements of facts, theoretical views having for the most part been kept out of sight, and it is above all fully and exceedingly well illustrated. —*London Lancet*, Aug. 2, 1875.

Altogether we are in a position to endorse the encomiums we formerly passed on the volume as being the best we could put in the hands of the student.—*London Medical Times and Gazette*, Oct. 25, 1873.

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VOL. XXXIV. JUNE, 1876. No. 402.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on Gelatinous Disease of the Synovial Membrane (*new operation*). Delivered Jan. 18, 1876. By C. F. Maunder, F.R.C.S., Surgeon to the London Hospital.

Gentlemen: I propose to-day to draw your attention to a disease which is very common under the age of puberty—I allude to gelatinous disease of the synovial membrane, popularly called "white swelling" when met with in the knee, but to which all joints are liable. It will be convenient to observe its progress in this joint because it is comparatively superficial, and its condition can therefore be readily appreciated by the senses of sight and touch. The onset and early stage are illustrated by the following case (reported by Mr. John Job, house-surgeon).

John L——, sixteen years of age, was admitted under Mr. Maunder's care on Nov. 30, 1875. The patient states that until twelve months ago he was quite healthy; he then, one day, slipped from a ladder, and, in falling, caught his right leg between the bars. In this position he was suspended for two or three minutes. The accident caused him very trifling inconvenience at the time, and it was not until the following day that he noticed the knee to be swollen and stiff; but there was no acute pain. He did not rest the limb, but followed his occupation,

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that of a ploughboy, as usual. For six months, beyond a feeling of stiffness and an occasional sensation of heat, there was little to trouble the patient; his general health was good, and he slept well. Then the joint began to get painful, and he was obliged to give up work, and use a stick in getting about. He then came to the hospital. On admission, the patient, of light complexion and fairly nourished, said he had got thinner since the accident. The right knee was uniformly swollen, the natural elevations and depressions being concealed. It was hotter than the surrounding parts. To the touch the swelling was elastic, yielding a deceptive sense of fluctuation, and tender on pressure. The leg was slightly flexed, with inability to straighten it. Slight wasting of limb. Family history very good.

The history of this case then is often the history of many others: some slight accident, of which little notice is taken at the time, and which probably is never thoroughly recovered from. At the same time there are many instances in which it does appear to be spontaneous or of constitutional origin. From this point of view it is called strumous, a term which I understand to apply to a subacute or chronic form of inflammatory action tending in the direction of extensive cell-growth, degeneration, and suppuration (occasionally to fibrination), rather than to resolution. The disease affects two classes of patients indiscriminately—the delicate and the fair, with chiselled features, clear complexion, pearly sclerotic, and fine hair; the plain and unattractive, with ill-defined lineaments, thick skin, and coarse hair. Now this is very different to a scrofulous disease consequent on tubercle, and must not be confounded with it. Pathology tells us that the altered condition of the knee (for example), which had caused the absence of its natural hollows and elevations, is due to a mass of cells growing, some on the surface of the synovial membrane and towards the joint cavity, and others in the subsynovial tissue, and to such an extent as to encroach upon and even obliterate the joint-cavity, and to conceal the natural outline of the joint and to render it shapeless. Now these cells, when examined by the microscope, have all the appearance of granulation-cells, and, like them, under favourable circumstances, will become developed into fibrous tissue. Unfortunately, in the majority of instances, the patient not being strong, degeneration follows, and suppuration is established. Thus, a joint, remaining more or less swollen and stiff, becomes hot, tender on pressure, and painful after exercise. At the same time the ligaments are invaded and disappear, the articular cartilages degenerate, the bone becomes carious, and sinuses are established in one or more directions, as in the preparation before you, and often in accordance with gravitation, in order that the pus and other débris may be discharged. While these destructive changes are taking place, the hamstring muscles displace the leg backwards and rotate it outwards, both shortening and distorting the limb, and possibly to be followed by either amputation or excision. Happily, in many instances, the degree of disorganization which I have mentioned does not transpire, but a fibrous anchylosis, more or less complete, occurs. Two such cases have been recently under care, and left the hospital last week convalescent.

Charlotte B——, aged six years and a half, admitted Sept. 28, 1875. The mother stated that the child struck the left knee three years ago, when it became swollen and stiff and ultimately painful, and remained so for a long time. She had a doctor for it, who called the disease "white swelling." The child is fairly nourished, somewhat anæmic, has dark hair and eyes, and is very intelligent. On examination, the left lower extremity is much wasted, the leg, which is somewhat displaced backwards and rotated outwards, forms with the thigh, when fully extended, an angle of 115°. The patella is immovable and fixed to the lower part of the outer condyle of the femur.

The case of Alice F——, eleven years of age, is almost similar in every particular. She fell and struck her knee five years ago; it gradually became swollen and stiff, but there was very trifling pain. She had never kept her bed.

You will recollect that these are the two instances in which, to remedy a deformity consequent on anchylosis of the patella to the femur, I performed a subcutaneous operation. With a tenotomy-knife alone in one instance, aided by a saw in the other, I separated the patella from the femur—an all-important step—to promote extension of the leg. No discomfort whatever, no suppuration, followed the operations, and both children left the hospital last week greatly benefited.

This preparation which I show you, where the patella is fixed to the femur by fibrous anchylosis, while the tibia is somewhat displaced backwards, is in a condition similar to that in which the joint of each of those children was previous to operation. You will readily perceive that a patella so fixed is a direct mechanical obstacle to extension of the tibia upon the femur, and that it must be dislodged before that can be effected. The operation which I have suggested, and which you have seen me perform twice, had this object in view. In one case 45° of extension was gained by the operation, and the child gets about comfortably with a high-heeled boot.

In these two cases the granulation-cells, instead of degenerating into pus, were converted into fibrous tissue, as in a cutaneous cicatrix, leading to a firm union of the patella to the femur, but to a weak union of the latter to the tibia.

Prognosis.—This, you will at once see, is unfavourable, as the disease is rarely arrested, leaving the joint sound. This gelatinous disease of the synovial membrane may be conveniently divided into two stages. The *first* is characterized by *cell-growth*, while the *second* is illustrated on the one hand by the *adhesive*, on the other hand by the *suppurative* form of inflammation. Of these latter the adhesive is the least to be feared, while the suppurative is of grave significance, because the necessity either for excision or amputation may arise during its progress.

Diagnosis.—The chief symptoms are (following or not some slight accident) stiffness in the morning, causing limping, mechanical in its nature, due to the swelling; gradually passing off on using the limb; associated at first with painless swelling; to be attended by tenderness and pain, not necessarily obliging the patient to lie up, unless suppuration, "starting pains," etc., arise.

All these cases illustrate the insidious and comparatively painless nature of the malady even to anchylosis, neither of the girls having kept her bed.

Treatment.—Good diet, change of air, and tonics, including preparations of iodine, are indicated by reason of the chronic nature of the complaint, implying a serious constitutional error. Perfect rest to the joint must be insured by splints, with an occasional counter-irritant in the shape of a flying blister; and when heat and tenderness have nearly subsided, strapping and bandage, to support the cell-mass and prevent venous congestion, must be applied. When all danger of resuscitating inflammation appears to have ceased, frictions and passive motion will much avail. Thomas's splint, such as I show you, as used by one of the above children, with a patten attached to the boot of the sound foot, will allow the patient to take exercise in the open air, will promote extension, and yet secure a certain amount of repose to the joint.

Tenotomy.—You will have remarked that, of my three cases, in that of the lad the disease is in its first stage, while in the two girls the malady has terminated in anchylosis with deformity. Now, as prevention is better than cure, I would suggest, as a rule of practice, that an attempt be made to prevent that deformity that you have witnessed in these children by a subcutaneous section of one or more hamstring tendons—at any rate the biceps, the power of which to rotate the leg outwards you can readily appreciate on your own person. I adopted this plan in the case of a child of a professional friend, and I believe with marked benefit. I propose to do the same in the instance of the lad above mentioned.—*Lancet*, April 15, 1876.

HOSPITAL NOTES AND GLEANINGS.

Traumatic Tetanus following Injury of the Knee; Amputation through the upper part of Thigh; Recovery.—The desirability of removing the peripheral source of irritation in traumatic tetanus is clearly shown in the following case.

Wm. M., æt. five, was admitted to the Royal Hospital for Sick Children, Edinburgh, under the care of Dr. MACDONALD, on February 19, 1876. A month prior to admission he fell from the back of a cart, and was drawn along the ground, receiving what was described as a deep wound over the inner aspect of the left knee. A stitch and simple dressing was all the treatment employed. From the first the inflammation spread superficially, and three weeks after the accident the knee began to swell. For some time before entering the hospital it was observed that his mouth was stiff, and that he could not swallow any solid food.

On admission, an ulcerated area about the size of the palm of the hand extended upwards from the level of the left knee-joint, with which it communicated at its lower part by an opening through which the inner condyle of the femur could be distinguished, exposed, and roughened. The patient's general health was much impaired, but his appetite remained good. The temperature was 102° F. He was ordered a draught containing ten grains of chloral along with fifteen grains of bromide of potassium, but yet he passed a very restless night.

Feb. 20. Morning temperature 100°. In the afternoon, while retracting his tongue, his jaws closed on it, and on its being freed the teeth snapped together. Temperature in the evening 103°. At eight P. M. he had an attack of opisthotonos, which lasted about two minutes. He was at once put under chloroform. Professor Spence, who was called in consultation, expressed the opinion that on account of the injuries alone, amputation was required. He accordingly, at 8.30, performed amputation through the middle third of the thigh by a long anterior and two shorter posterior flaps principally composed of skin. No sutures were used—merely three strips of plaster to retain the flaps in position, and the stump was covered with a single layer of lint soaked in carbolized oil. During the operation the child had two attacks of spasms, while under chloroform. The condyles of the femur were found to be split into the knee-joint, and the joint itself was filled with purulent fluid. Twenty grains of chloral were at once administered, but on coming out of chloroform he had attacks of opisthotonos every ten minutes for about two hours, when twenty grains more were given. The interval of rest then extended to forty-five minutes. After each spasm he had five grains of chloral, and on three occasions hypodermic injections of three, five, and seven and a half minims of solution of the sulphate of atropia (B. P.).

21st. Slept soundly for about three hours in the morning. During the day he had four spasms, at intervals of about two hours. He took milk and chicken soup freely. At 10 P. M., he had a very severe attack, which lasted for five minutes. Seven minims and a half of atropia were injected, and a spinal ice-bag applied.

He slept soundly, and had no more tetanic symptoms, except on one occasion, when Prof. Spence, observing a fixed expression on his face, ordered an atropine injection. His appetite continued good, and he was soon able to eat solids. The chloral was kept up, however, in diminishing doses for about a week. The temperature fell to 98.6° on the second day after the operation, and continued to range between 98° and 99° for nine days, when a considerable rise took place, coincident with the appearance of a measly rash. By the 14th of March, the face had lost all its pinched appearance, and the stump was almost entirely healed by primary union.

Note by Professor Spence.—In recording the foregoing case as a contribution to the treatment of a very obscure disease, I would not wish to be understood as indicating the opinion that amputation would be successful in arresting the tetanic symptoms in all cases where they arise from lesion of a limb, by removing the cause, and cutting off the continuity between the irritated peripheral nerves and the nerve-centres. Such an opinion would require much larger foundation than a single successful case.

I have frequently performed amputation of lacerated fingers in tetanus, but without any benefit, although the operations were performed early in disease. Indeed, the progress of cases of traumatic tetanus would rather lead to the view that when the symptoms fairly manifest themselves certain changes have already occurred in the nerve centres which the removal of the originating cause comes too late to benefit. But the case just recorded warrants me, I think, in saying that no remedial measures could have relieved the patient unless the injured limb had been removed; and, in so far, the amputation must be regarded as a main part of the curative measures. In this case the disorganized state of the knee-joint left no room for hesitation; but, from my experience of tetanus, I believe the irritable and ulcerated cutaneous surface was the real exciting cause, and the result of this case would certainly encourage to amputate in similar cases even where the local injury was less severe.—*Lancet*, April 22, 1876.

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Congenital Cleft Palate treated by the application of Strong Nitric Acid and without Operation.—Mr. Mason has at present under observation at St. Thomas's Hospital several interesting cases of congenital cleft palate, which he is treating by the application of strong nitric acid alone, and consequently without the use of the knife. The ages of the patient vary from a few weeks to several years. Mr. Mason thinks that this method of effecting union is especially applicable to cases in which the cleft is of average extent, and even where the hard palate is partially implicated. In more severe instances the ordinary operation may be required. Mr. Mason finds that the application of the acid is attended with no pain or inconvenience whatever to the patient, and although the cure is more slowly accomplished, it has the advantage of being sure, and of completely closing the fissure in the most perfect manner, without the risk of the parts giving way, either wholly or partially, as too often happens after the usual operation of staphyloraphy. A further gain seems to be that the cases may be dealt with as out-patient, as in all the examples now under notice. Mr. Mason, after many trials, prefers the strong nitric acid to any other form of caustic. We shall continue to watch the progress of these cases, and give the results on a future occasion.—*Lancet*, May 6, 1876.

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Large Strangulated Congenital Hernia; Operation, followed by Suppuration between the Abdominal Muscles; Recovery.—The following case of strangulated congenital hernia presents some points of clinical interest. The hernia was very large, oblique inguinal, and congenital; the strangulation was very acute, and the progress of the case afterwards was exceptional. The wound of the operation was small, and over the neck of the sac; but some difficulty was experienced in returning the large quantity of bowel—about sixteen or eighteen inches—into the abdomen, as it appeared to be held by some constriction in the scrotum. Mr. Lawson therefore withdrew the whole of the protruded intestine from the sac of the tunica vaginalis, and then the reduction was easily accomplished. The patient at first progressed very favourably. All tenderness of the belly ceased after the operation; but on the second day the temperature rose to 102.6°, the pulse to 112, and the man complained of tenderness on the right side of the abdomen. The belly was flaccid, and the tenderness seemed to be confined to the abdominal walls. The high temperature and quick pulse, with tenderness on the right side, continued until the sixth day, when the symptoms were relieved by the escape of a large quantity of pus, which came from the wound when pressure was applied with the hand over the right iliac region. There was extensive suppuration between the abdominal muscles, and this accounted for the continued high temperature and pulse. On the following day the pulse went down to 96, and the temperature to 99.2°. During the development of these symptoms the man had a wakeful, busy delirium, which closely resembled delirium tremens. The patient improved as soon as free suppuration was established, and has continued to do well. The amount of pus which escaped daily for many days was not less than from four to six ounces. He is now convalescent.

James C——, aged twenty-four, was admitted into Middlesex Hospital on Dec. 29th at three o'clock in the morning, with a large scrotal hernia of the right side, which he was unable to return. He had been ruptured all his life, and had worn a truss, which, however, did not prevent the hernia from frequently coming down; but up to the time of admission he had always been able to reduce it. Four hours before his admission, whilst straining at stool, the hernia descended, and this time it resisted all his endeavours to get it back, and as he began to feel some discomfort, he applied to the hospital for relief.

On his admission he was seen by the house-surgeon, who found a large scrotal hernia, not in the least tense, but rather tender, and as there were no other symptoms the man was placed in bed, with his pelvis raised. A full opiate was given by the mouth, and an ice-bag was placed over the tumour. The lower bowel was also emptied by means of an enema.

The man derived no benefit from this treatment, but symptoms of strangulation rapidly set in, and at nine o'clock the tumour was very tense and tender to the touch. There was pain in the abdomen with a sense of dragging and nausea. Mr. Lawson then saw the patient, and decided to operate at once. There was nothing special in the operation, except that after the division of the stricture there was some difficulty in returning the bowel, as it seemed to be held in the scrotum. Mr. Lawson accordingly drew out, as already stated, the intestine, about fourteen or sixteen inches, from the sac of the tunica vaginalis, and then it slipped back easily into the abdomen. The wound was closed and a pad and bandage applied. The belly was covered with a layer of cotton-wool, and he was ordered half a grain of extract of opium, which was to be repeated every two or three hours if in pain. After the patient had recovered from the ether, he expressed himself greatly relieved by the operation.

Jan. 3d. The patient passed a good night, but complained of pain on right side of abdomen. The belly was quite flaccid. The temperature and pulse had risen; pulse 112; temperature 102.6°. To go on with the opiate pills.

The patient continued in much the same state, with a high pulse and temperature, until Jan. 4th, when there was a large escape of pus from the wound, evidently from extensive suppuration between the abdominal muscles.

5*th.* Much better. The tenderness was greatly diminished. Pulse 96; temperature 99.2°. The discharge very free from the wound.

6*th.* The bowels acted well without medicine. The discharge still continues very copious on pressure with the hand over the right iliac region.

30*th.* The man has progressed favourably since last report. The discharge has ceased, and he is convalescent.

The patient has since left the hospital quite well.—*Lancet*, March 25, 1876.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

The Bureau of Medical Service of the Centennial Exhibition.—The Bureau of Medical Service has been organized for the immediate gratuitous relief of all cases of sudden illness and accident occuring to visitors and others, during the continuance of the Exhibition.

The building of the bureau, fitted up for the temporary relief and comfort of such cases, is situated in Landsdowne Ravine, in the rear of Judges' Hall, midway between the western end of the Main Building and Horticultural Hall. It is distinguished from other buildings by its flags, one of which is the United States flag, having the words Centennial Medical Department printed across the centre; the other is the hospital flag, having a large red Geneva Cross on a white field.

The organization consists of William

Pepper, M.D., Medical Director; Theo. Herbert, M.D., Secretary and Resident Physican; Jacob Roberts, M.D., S. W. Gross, M.D., Roland G. Curtin, M.D., H. C. Wood, M.D., Hamilton Osgood, M.D., DeForest Willard, M.D., Medical Staff.

The Bureau is provided with an ambulance and stretchers for the immediate removal of all cases to the hospital building and from thence by the ambulance to the city hospitals, the patients' homes, or hotels. It is not intended in any case to retain the patients in the hospital building over night, it being only intended for a temporary resting-place.

During the hours of the Exhibition the members of the staff will be constantly on duty at the hospital.

The Resident physician will have charge of the guard—men of the fire department, attachés of the various commissions, and all others residing within the grounds. He will also act as Sanitary Officer and make a strict sanitary inspection of the grounds daily.

Sanitary Condition of Philadelphia.—Owing to the very large number of persons who contemplate a visit to Philadelphia during the coming summer, it seems important that the utmost publicity should be given to the following facts bearing on the sanitary condition of Philadelphia, which are extracted from a circular on this subject just issued by William Pepper, M.D., Medical Director of the International Exhibition of 1876.

The following statistics, which have been obtained from the most authentic sources accessible, represent the mortality in some of the chief cities of the world during the past four or five years:—

	No. of years.	Average population.	Average total mortality.	Average death-rate per thousand.
Vienna	5	648,560	20,424	31.42
N. York	5	994,458	29,601	29.93
Berlin	4	250,000	28,420	29.91
London	5	3,284,488	76,741	23.33
Paris	4	1,851,792	42,724	23.06
Phila.	5	744,831	16,573	22.27

While thus showing an average rate of mortality more favourable than that found in any other city containing over 500,000 inhabitants, Philadelphia has recently (1874) attained a degree of healthfulness almost unparalleled, viz.: with a population at that time of 775,000, the number of deaths was but 14,966, giving a death-rate of only 19.3 per thousand. These very favourable results are largely due to the abundant and cheap water-supply, and to the opportunities given, even to the poorest citizens, for the enjoyment of pure country air in the great Fairmount Park, which contains 2991 acres. The extent to which this is valued by the citizens may be inferred from the fact that during the year 1875, the Park was visited by over eleven million persons.

The most powerful influence of all, however, is the absence of that overcrowding of the population, which is the most fruitful source of sickness and death in many quarters of nearly all other large cities. This will be more clearly comprehended when it is remembered that the 817,488 inhabitants of Philadelphia are spread over an area of 129⅛ square miles, which are traversed by more than one thousand miles of streets and roads; and that the city contains, in addition to other kinds of buildings, 143,000 dwelling houses occupied by families, a number exceeding by over 40,000 that of any other city in America.

The climate of Philadelphia is also, on the whole, a favourable one, although presenting many of the peculiarities common to inland localities. The mean annual temperature of the last ten years is 53.73° Fahrenheit; the average annual rain-fall is about forty-five inches.

The following table exhibits the mean temperature of each month for the past ten years, showing that the range is far less extreme than is found in many other less favourably situated localities.

Mean Temperature (Fahrenheit) of each month during the past ten years.

January . . .	32.72°	F.
February . . .	33.12	"
March	39.16	"
April	53.36	"
May	63.24	"
June	73.54	"
July	78.74	"

August . . .	75.92° F.
September . . .	67.72 "
October . . .	56.03 "
November . . .	43.34 "
December . . .	33.92 "

It is thus seen that only during the months of June, July, and August does the mean temperature rise to a high point. During this period there are very rarely any prevailing epidemic diseases; and the chief mortality occurs among children, especially among the poorer classes.

The health of Philadelphia at present is unusually good. Timely efforts have been made to secure an abundant water-supply to meet the great increase in the demand which must be expected this summer as compared with previous years. Constant watchfulness will be exercised by the authorities to maintain cleanliness, and to avoid or remove every possible cause of disease.

Within the Exhibition grounds a rigid sanitary inspection will be maintained, under the control of the Bureau of Medical Service; and thus a guarantee will be afforded that no cause of infection or disease will be allowed to occur through neglect of this important duty.

The object of this circular has been to call attention to the unusual sanitary advantages of Philadelphia, and to the preparations which have been made to insure the highest possible degree of healthfulness during the approaching Exhibition season. It is proposed to issue at certain intervals other circulars, announcing in an official and accurate manner the sanitary condition of the city, so that entire security may be felt by all who desire to visit the Centennial International Exhibition.

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International Medical Congress, 1876.—The committee of arrangements have been notified by the following distinguished foreigners of their intention of attending the Congress to be held in Philadelphia in September next: Dr. Brown-Séquard, of Paris; Dr. Robert Barnes, late President of the Obstetrical Society of London; Mr. Henry Wilson, of Dublin; Dr. Chas. Bland Radcliffe, of London; Mr. Morell Mackenzie, of London; Dr. John Barker, of Dublin; Mr. William Stokes, of Dublin; Mr. William Adams, President of the Medical Society of London; and M. Benjamin Ball, Professor Agrégé in the Paris Faculty.

The Obstetrical Society of London, the Medical Society of London, the Surgical Society of Ireland, and the Medical Society of Kings and Queens College, Ireland, have notified the committee of their intention to be represented by delegates.

Delegates have been appointed by the following State Medical Societies:—

South Carolina Medical Association.—Drs. Eli Geddings, of Charleston; S. Baruch, of Camden; H. D. Fraser of Charleston; T. T. Robertson, of Winnsboro'; A. P. Wylie, of Chester; B. W. Taylor, of Columbia; and E. B. Turnipseed, of Columbia.

Tennessee Medical Society.—Drs. Paul F. Eve, of Nashville; D. C. Gordon, of Pulaski; W. P. Jones, of Nashville; J. H. Van Deman, of Chattanooga; W. C. Cook, of Nashville; T. Menees, of Nashville; F. Bogart, of Sweetwater; J. R. Buist, of Nashville; S. S. Mayfield, of Brentwood; and H. J. Warmouth.

Kentucky Medical Society.—Drs. L. P. Yandell, Sr., R. O. Cowling, E. S. Gaillard, John Goodman, D. W. Yandell, Jno. A. Larrabee, D. S. Reynolds, J. A. Ireland, of Louisville; J. N. Letcher, of Henderson; J. Hale, of Owensboro'; Geo. T. Erwin, of Danville; J. M. Montmollin, of Ashland.

Georgia Medical Association—Drs. J. A. Eve, Robert Battey, R. J. Nunn, W. H. Doughty, W. F. Westmoreland, D. W. Hammond, H. F. Campbell, F. A. Stanford, W. O'Daniel, and J. M. Johnson.

New York State Medical Society.—Drs. Frank H. Hamilton, of New York; B. Fordyce Barker, of New York; Edward H. Parker, of Poughkeepsie; Frederick Hyde, of Cortland Village; Henry W. Dean, of Rochester; John P. Gray, of Utica; L. I. Teft, of Syracuse; J. V. P. Quackenbush, of Albany; James P. White, of Buffalo; George Burr, of Binghamton; S. O. Vanderpoel, of Quarantine; G. A. Dayton, of Mexico; Wm. C. Wey, of Elmira; C. R. Agnew, of New York; B. F. Sherman, of

Ogdensburg; E. M. Moore, of Rochester; Francis Burdick, of Johnstown; Geo. J. Fisher, of Sing Sing; Harvey Jewett, of Canandaigua; Ellsworth Eliot, of New York; Julius F. Miner, of Buffalo; W. H. Bailey, of Albany; E. R. Hun, of Albany; C. H. Porter, of Albany; J. Foster Jenkins, of Yonkers; A. M. Vedder, of Schenectady; H. D. Didama, of Syracuse; E. R. Squibb, of Brooklyn; Alexander Hutchins, of Brooklyn; Wm. Vosburg, of Lyons; Austin Flint, Jr., of New York; John D. Dutton, of Auburn; and Thomas M. Flandreau, of Rome. Two vacancies are yet to be filled.

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American Medical Association. — This Association will meet in Horticultural Hall, Philadelphia, on Tuesday, June 6th. Indications point to over two thousand delegates being present.

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Association of Medical Superintendents of American Institutions for the Insane.—The thirtieth annual meeting of this Association will be held at the Continental Hotel in the city of Philadelphia, on Tuesday June 13th, 1876.

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American Pharmaceutical Association.—This Association will meet in Philadelphia on the 12th of September next.

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Medical Association of Alabama.—This Society met in Mobile on the 11th of April, Dr. J. J. Dement, of Huntsville, President, in the chair. The following officers were elected for the ensuing year: President, Dr. E. D. McDaniel, of Camden; Vice-Presidents, Drs. R. Inge, of Greensboro', and J. S. Bankson, of Jackson County. Birmingham was selected as the place for the next annual meeting.

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Medico-Chirurgical Faculty of Maryland.—The seventy-eighth annual session of this association was held in Baltimore on the 11th of April, Dr. John F. Monmonier, President, in the chair. The following officers were chosen for the ensuing year: President, Dr. Christopher Johnston; Vice-Presidents, Dr. James A. Steuart, F. T. Miles, and W. P. C. Williams; Recording Secretary, Dr. Wilson G. Register, of Baltimore.

Texas State Medical Association.—The annual meeting was held in Marshall, on the 4th of April.

The following officers were elected: President, Dr. Harrison, of Columbia; Vice-Presidents, Drs. Pope, of Marshall, Wiley, of Dallas, and Park, of Tyler; Secretary, Dr. W. A. East. The next annual meeting will be held in Galveston on the first Tuesday in April.

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South Carolina Medical Association.—The annual meeting of this association was held in Columbia, under the Presidency of Dr. James McIntosh, of Newberry. The election of officers for the next year resulted in the following choice: President, Dr. J. F. M. Geddings, of Charleston; Vice-Presidents, Drs. J. C. Maxwell, of Abbeville, J. H. Foster, of Lancaster, and G. S. Trivezant, of Richland; Recording Secretary, Dr. H. D. Fraser, of Charleston.

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Tennessee Medical Society.—The forty-third annual session convened in Nashville on the 4th of April, Dr. J. H. Van Deman, of Chattanooga, presiding. The election of officers resulted as follows: President, Dr. J. J. Abernethy, of Deeherd; Vice Presidents, Drs. F. Bogart, of Sweetwater, J. A. Duckins, of Readyville, and S. T. Evans, of Union City; Recording Secretaries, Drs. Duncan Eve, and J. W. McAllister, of Nashville. The next meeting will be held at Nashville.

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California State Medical Society.—The sixth annual meeting of this society was convened in San Francisco on the 19th of April, Dr. Nixon, President, in the chair.

The election for officers for the ensuing year resulted as follows: Pesident, Dr. Cheney, of Butte; Vice Presidents, Drs. B. D. Dean, of San Francisco, W. S. Hamlin, of Yuba City, Pond, of Napa, and Todd, of Stockton; Secretary, Dr. Tyrrel, of Sacramento; Treasurer, Dr. Oatman. The society will meet *next year* in San Francisco.

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Georgia Medical Association.—This Society convened in annual session in Augusta on the 19th of April. The following officers were elected for the ensuing year: President, Dr. Robert Battey; Vice Presidents, Drs. K. P. Moore and A. W. Calhoun. Macon was selected as the next place of meeting.

University of Pennsylvania.—Dr. Jos. Carson has resigned the chair of Materia Medica in the Medical Department of this institution, which he has long filled with great advantage to the school and credit to himself. He has been elected by the Trustees Emeritus Professor.

An election to fill the vacancy in the Faculty thus created, will be held on the 20th of this month.

Preliminary Education.—The Portland (Maine) Medical School makes the follow-announcement:—

"No person will hereafter be admitted to the school, who does not satisfy the Board of Instructors that he possesses at least a good common school education. The fact of graduation from college, or from a respectable high school or academy, is taken as sufficient evidence of such acquirements; but in the absence of a diploma, or certificate to this effect, a written examination will be held."—*Med. Record*, April 29, 1876.

FOREIGN INTELLIGENCE.

Treatment of Tapeworm.—A return of the quantity of the several drugs in most general use for the treatment of tapeworm, in the public hospitals of Paris during the last ten years, has been made by the Director of the Central Pharmacy. A comparison of the relative quantities consumed during the first and second halves of the decennium supplies an interesting indication of the professional verdict as to their relative value. The average quantity of kousso consumed annually was more than twice as great during the four years since 1870 as during the six years before. The amount of pumpkin-seeds employed has not quite doubled; that of pomegranate-bark has remained almost stationary; and that of the male-fern has more than doubled. Kousso and male-fern thus appear to be the remedies on which Parisian experience shows most reliance can be placed. M. Colin, however, in a recent paper on Tænia in the French Army, advocates very strongly the use of pomegranate-bark. He asserts that when the precaution was taken never to administer a purgative before the vermifuge, the head of the worm was expelled, in three cases out of four, by a single dose. A purgative given before simply tears away the segments, leaving the head attached, and the head is then undisturbed by the special medicine.—*Lancet*, March 18, 1876.

Removal of a Cherry-Stone from the Nostril of a Woman aged sixty-four, where it had remained for nearly twenty years.—This operation has recently been performed by M. Tillaux. The patient, before presenting herself at Lariboisière Hospital, had gone the round of the hospitals and a host of private practitioners, and, strange to say, no one detected the presence of the foreign body in the nostril. The consequence was, the poor creature was treated for ozæna, which of course was the most prominent symptom; but all were mistaken as to its real cause. Some looked upon it as a scrofulous rhinorrhœa, while others put it down to the syphilitic taint; and the patient was of course submitted to the treatment generally adopted in one or other of these affections. M. Tillaux himself had fallen into the same error, and, although there was no other sign of syphilis or scrofula, whether old or recent, M. Tillaux, like most of his *confrères*, gave the patient the benefit of the doubt, as is done in criminal cases, being convinced that if she is not scrofulous she must be syphilitic; and accordingly, she was subjected to what is termed the specific treatment for syphilis. The patient had been nearly six months in hospital undergoing this treatment, without any improvement in her condition. From time to time M. Tillaux examined the nostril with a probe, and felt the foreign body, which, however, he mistook for dead bone. Eventually, the foreign body became movable, which induced M. Tillaux to attempt its extraction, which he succeeded in effecting with a pair of dressing-forceps. The instrument brought away a body about the size of a large pea, as black as coal, of an irregular shape, and of a most offensive odour; but M. Tillaux, having observed that it was heavier than a bit of bone of that size, was puzzled as to its real nature. With a fine saw he cut the body in two equal halves, and to his great surprise, he found that it was nothing more nor less than a common cherry-stone. How it got into the nostril was another question. The patient denied having introduced it, and could not say when and how it got there. M. Tillaux suggested that in eating cherries some people swallow the stones as well, and the patient was probably one of those gluttonous creatures. It may be that in the present case, in the act of deglutition, the stone attempted to "go down the wrong way," as it is vulgarly expressed; and the patient, by an instinctive movement, coughed up the stone, which, instead of escaping by the mouth, was forced up the posterior nares, and there took up its abode uutil its forced removal. It need hardly be said that from that day forth the patient's condition rapidly improved, and she left the hospital a week after the operation with her nose as well as if nothing had happened to it.—*Med. Times and Gaz.*, Feb. 12, 1876.

[An analogous case, in which a glass button with a brass wire eye was removed from the nostril of a lady, where it had remained for upwards of twenty years without its presence being suspected, was reported to the Philadelphia College of Physicians in 1857 by Dr. Isaac Hays, and is published in the Transactions, vol. iii. N. S. p. 154.]

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Eucalyptus Globulus in Pulmonary Gangrene.—Of all the drugs employed by Dr. Bucquoy (of Cochin Hospital, Paris) in pulmonary gangrene, none, he asserts, have given him better results than Eucalyptus globulus. He uses it in the form of an alcoholate—two grammes—(half a drachm) daily in a mixture of water, gum, orange-flower water, and syrup. Out of the various cases he has had under his care at Cochin, five ended in cure, whilst in all the others there was a favourable modification of the odour of the breath, the sputa, and the violent cough, after carbolic acid had failed.—*Lancet*, March 18, 1876.

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Chromic Acid for Warts.—Three or four applications of this acid will cause the disappearance of warts, however hard, large, or dense these may be. The application gives rise to neither pain, suppuration, nor cicatrices, the sole inconvenience being the production of a dark brown colour.—*L'Union Médicale*, April 22, 1876.

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A Caution in Hypodermic Injection of Morphia.—In a note read at the *Société de Biologie*, Dr. Chouppe adverted to two cases in which very serious symptoms immediately followed the injections of minute quantities of morphia. This accident, he has found out, arises from the canula of the syringe having penetrated one of the minute veins, so that the morphia is thrown directly into the venous circulation. When this is the case, the patient, in twenty-five or thirty seconds after the injection of an ordinary dose, is seized with tinglings in the hands, which soon pervade the body, and are accompanied by very intense itching. The veins of the neck become swollen, the face is flushed, and the pulse beats violently, rising to 120 or even to 160. In about a minute and a half, a cold sweat pours off the surface; and in three or four minutes all urgency has ceased, although the heart may continue agitated for some hours after. In order to prevent the occurrence of these effects, the operation should be performed very slowly, so that the injection may be at once stopped when tingling of the hands commences; or what Dr. Chouppe believes will prove the better practice will be to introduce the canula, not with the syringe already charged with the injection, but without the latter, and observe whether a vein has been penetrated, as shown by the issue of blood, drop by drop from the canula. When this is the case, we should either puncture afresh in another place or push on the canula deeper, so as to traverse the wounded vein. After this precaution has been taken, the injection may then be made.—*Med. Times and Gaz.*, March 8, 1876, from *Gaz. Hebdom.*, March 17.

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Death after the Administration of Chloroform during Parturition.—A case of this is related in *L'Union Méd.*, April 13th, 1876. A multipara, æt. 25, entered the Maternité de la Charité at Lyons on the 23d of March. Labour-pains continued all the evening and night. The next morning at 7 o'clock the membranes ruptured; a shoulder presentation was recognized. To effect version chloroform was administered by the sister in charge of the ward without calling on the chief of the service or the interne. The patient did not arouse after the operation. The interne was then called, who found the pulse very small, the face cyanotic, the inspirations short and frequent. All efforts to revive the patient proved fruitless, and in ten minutes death ensued.

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Death from Chloroform.—The *Lancet* (April 15, 1876) reports a case which occurred at Leicester.

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Ascaris found in the Os Uteri.—Mr. Johnston exhibited to the Dublin Obstetrical Society (Feb. 12) a specimen of ascaris which he found in the os uteri of a woman upon whom he was operating for vesico-vaginal fistula. This parasite has been known to creep out of the anus into the vagina, but one has not before been found so high up, it is believed.

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The Coca-Leaf.—At the Edinburgh Botanical Society, on April 13, Sir R. Christison read an interesting paper on the Restorative and Curative Effects of the Coca-leaf of Peru. At the outset, Sir Robert showed that diversity of opinion had existed among chroniclers, and travellers, in regard to the effects of coca upon those who chewed it; for, while most of them considered that it possessed wonderful powers of sustaining strength under prolonged fatigue without food, some thought its use pernicious and dangerous, others as not only innocuous, but beneficial to health. The annual consumption of the leaf by the eight millions of people along the Cordilleras of the Andes who use it, was thirty millions of pounds. After giving a description of the coca-plant, and the method of gathering and drying its leaves, Sir Robert gave an account of some experiments made upon some of his students and himself, in which he had found that it was both a preventive of fatigue and a restorative of strength after severe bodily exertion, and that it had no reactionary effect upon the system. In regard to the use of coca as a medicine, he advised no one to try it until something more was known about it, or at least not to make use of it without consulting a physician. He had succeeded in extracting a liquor from the leaf, as a more satisfactory mode of administration than chewing the leaf; but he had not been able to ascertain whether this retained all the properties of the article. A similar *liqueur de coca* was to be had in Paris.—*Brit. Med. Journal*, April 22, 1876.

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Effects of Cold on Milk.—The effects of a low temperature on milk have been carefully examined by M. Eug. Tisserand, who recently communicated his observations to the Académie des Sciences. He found that, if cows' milk is immediately, or soon after being drawn, placed in vessels at various temperatures between freezing-point and 90° F., and the initial temperature is maintained for twenty-four or thirty-six hours, it will be found that the nearer the temperature of the milk is to freezing-point the more rapid is the collection of cream, the more considerable is the quantity of cream, the amount of butter is greater, and the skimmed milk, the butter, and the cheese are of better quality. These facts, he believes, may be explained by Pasteur's observations on ferments and their effect on the media in which they live. It is probable that the refrigeration arrests the evolution of the living organisms which set up fermentation, and hinders the changes which are due to their growth. The facts stated indicate room for great improvement in the methods of storage and preservation of milk. To keep milk at its original quality extreme cleanliness and a low temperature are absolutely necessary. In the north of Europe, Denmark, etc., the value of cold is already recognized, and in warmer climates the need for its assistance is greater. There is nothing impracticable in the suggestion, since running streams can be used to aid refrigeration. Where the quality of the milk is of great importance, ice may be employed.—*Lancet*, March 11, 1876.

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Cure for a Cold in the Head.—Dr. DAVID FERRIER extols (*Lancet*, April 8, 1876) a snuff made of the following ingredients as a very speedy cure of that troublesome affection, a cold in the head.

Hydrochlorate of morphia, two grains; acacia powder, two drachms; trisnitrate of bismuth, six drachms. As this is neither an errhine nor a sternutatory, but rather the opposite, it may be termed an anti-errhine or anti-sternutatory powder. Of this powder one-quarter to one-half may be taken as snuff in the course of the twenty-four hours. The inhalations ought to be commenced as soon as the symptoms of coryza begin to show themselves, and should be used frequently at first, so as to keep the interior of the nostrils constantly well coated. Each time the nostrils are cleared another pinch should be taken. It may be taken in the ordinary manner from between the thumb and forefinger, but a much more efficacious and less wasteful method is to use a small gutter of paper, or a "snuff spoon," placing it just within the nostril and sniffing up forcibly so as to carry it well within. Some of the snuff usually finds its way into the pharynx, and acts as a good topical application there, should there be also pharyngeal catarrh. The powder causes scarcely any perceptible sensation. A slight smarting may occur if the mucous membrane is much irritated and inflamed, but it rapidly disappears. After a few sniffs of the powder, a perceptible amelioration of the symptoms ensues, and in the course of a few hours, the powder being inhaled from time to time, all the symptoms may have entirely disappeared.

I am writing this note cured of a cold in the head which I began to manifest in a very decided manner last night—viz., weight in the frontal sinuses, tickling of the nostrils, sneezing, watering of the eyes, and commencing flow of the nasal mucus.

I commenced taking the snuff, continuing at intervals for about two hours, thoroughly coating the interior of the nostrils with it. Next morning I found myself entirely free from catarrh. The effects in my own case have been twice so rapid and beneficial that I look with comparative indifference on future colds. In the case of others to whom I have recommended the same treatment, equally rapid and beneficial results have followed. One of my students in King's College Hospital described the effects as quite magical and unexpected, having in this way got rid of a cold in one evening. The other day one of the officials in King's College asked me if I could do anything to check a dreadful cold in the head which he had just caught. I gave him the above prescription, asking him to note the results A day or two after he came and told me that I had given him very marvellous snuff, as he had not taken more than one-eighth part before he had got rid of all his uneasiness and discomfort. Though I have not yet had very many opportunities of trying this method of cure, the success so far has been such as to warrant my recommending it as a rapid and efficacious treatment of nasal catarrh.

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Daltonism among Sailors.—Dr. FAVRE, of Marseilles, calls attention to the fact that while in reference to railway *employés* the recognition of the red signal is almost the only absolute essential point, with regard to sailors the green is just as indispensable as the red. At recent examinations of 1050 candidates for employment on railways, he has detected as many as 98 Daltonians who were deceived as regards one or more colours, this occurring as regarded violet 78 times, blue 50, green 54, yellow 14, and red 10. Of the 98, 29 only hesitated, and 8 corrected their errors, leaving, therefore, 61 Daltonians. Ultimately only 11 had to be absolutely excluded; but if these men had to be examined for sea or coast service, all those who could not distinguish green ought to have been excluded also. Dr. Favre calls attention to the fact that men employed as sailors are not examined on this point, and he does not hesitate to attribute many accidents at sea to the colours of signals, light-houses, etc., being mistaken, especially in the merchant service. He lays down the following propositions: 1. All sailors having to make use of coloured signals should undergo an examination in colours. 2. Exact appreciation of red and green is indispensable, and practice in these colours should be established on all ships. 3. Sailors who have suffered from contusions or wounds of the head or eyes should be re-examined for colours. 4. Examination should be instituted after severe illnesses. 5. Those who abuse the use of alcohol or tobacco should be frequently examined. 6. A periodical examination should be instituted in the marine service. 7. In all naval schools and establishments practice in colours should be put in force. 8. The necessity of recognizing green and red constitutes for sailors a minimum, which doubtless before long will be considered insufficient. —*Med. Times and Gaz.*, April 8, 1876, from *Marseille Méd.*

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Pawnbrokers and Typhus Fever.—A recent outbreak of typhus in Leeds is attributed to the infected clothes of a patient who had died of that disease, and were pawned at a pawnbroker's. The son, wife, and an assistant of the pawnbroker were in succession seized with the disease. —*The Sanitary Record*, May 6, 1876.

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Unsexing of Women.—Mrs. LYNN LINTON, in an article recently published, entitled "Woman's Place in Nature and Society," makes the following remarks on the prevalent desire of women to become doctors. "This craze of unsexed manliness is a false move; we can only hope that it will pass before it has done much vital damage, though assuredly it has done damage enough already! In substituting excitement for duty, individualism for love, freedom from natural restraint for the lovely unselfishness of maternity, personal ambition for wifely devotion, it has cut at the root of all the charms and virtues of womanhood."—*Med. Times and Gaz.*, May 13, 1876.

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The Royal College of Surgeons of England.—This Institution has lately placed upon its examiners in midwifery a very ungracious task, the effect of which would be that the examinations in midwifery would stand alone, and place partially educated persons on a level with those who had or could obtain a complete medical education. The result has been that the examiners in midwifery have resigned.

At the meeting of the Obstetrical Society of London on the 5th of April last, the following resolution was adopted by acclamation.

Resolved, That the Obstetrical Society of London present a vote of thanks to Dr. Arthur Farre, Dr. Barnes, and Dr. Priestley for having resigned their posts as Examiners in Midwifery at the Royal College of Surgeons in the interests of the Science and practice of Obstetrics.—*Lancet*, April 22, 1876.

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Stromeyer Jubilee.—Thursday, the 6th of April, was the fiftieth anniversary of the day on which Stromeyer received his degree of Doctor of Medicine in the University of Berlin, and the occasion was made the subject of a demonstration of a most remarkable kind in honour of this veteran surgeon, the details of which are gleaned from the *Lancet*, April 15, 1876.

Already, the evening before, a serenade was performed in front of Stromeyer's house by torchlight by a chorus of young men belonging to the town. But next day congratulations and every kind of honour a man could desire rained upon his head. First, the Empress of Germany sent an autograph letter, expressing her good wishes and esteem, and a beautiful turquoise Dresden vase with the Emperor's portrait enamelled upon it. Then, on the part of the Emperor, the Prince Albrecht of Prussia, General Commanding the district, came in person to pin on Stromeyer's breast, already covered with Orders, that of the Red Eagle of Prussia. The deputations from his fellow-citizens; from the various German Universities, Berlin, Bonn, Erlangen, Freiberg, Gottingen, Halle, Leipzig, Munich, Prague; official visits by various persons, as the President of the Province, Count Eulenburg, Herr von Beningen, the Speaker of the Prussian Parliament, came in rapid succession; lastly, the deputies from a distance.

But the chief event in the programme was the great festival in the evening, at which some 300 were present. It took place in the handsome hall of the Bourse, and to the beautiful music of the band of the 3d Regiment of the Prussian Guards. At a German dinner the toasts begin with the soup. Accordingly, no sooner was it served than Count Eulenberg stood up to give the toast "Kaizer und König," but he coupled the loyal sentiments he expressed with a happy eulogy of Stromeyer. Then in succession, as the dinner proceeded, came the other toasts, the first after the Emperor being that of Stromeyer, proposed by Surgeon-General Berthold, who gave, in most fluent and apposite language, a sketch of the "Jubular's" life. Stromeyer replied at considerable length.

But it is really difficult to describe the good-will and enthusiasm which prevailed, and made this festival the most remarkable ovation to the worth of a man which it is possible to imagine. During the day the telegraph office was occupied transmitting telegrams arriving from all parts, so many it was said had never before passed through the office in Hanover in one day.

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The Medical Members of the French Chamber of Deputies.—The special knowledge of the medical members of this Chamber is likely to be often available. For the consideration of the new Bill for the organization of the hospital services of the army, of a committee of eleven deputies, six are medical men, one of whom, M. Laussedat, has been chosen as the chairman, and another (M. Liouville) as secretary.—*Med. Times and Gaz.*, April 22, 1876, from *Gaz. Méd.*, April 15.

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Obituary Record.—Died, on the 23d of February last, of malignant erysiplas, M. Hubert, Professor of Obstetrics in the University of Louvain.

—— on the 11th of April last, of heart disease, Prof. Louis Traube, of Berlin. Dr. T. was born in 1818, in Silesia, and studied medicine at the Universities of Breslau and Berlin. After taking his degree he went to Prague, Vienna, and Paris, where he studied specially methods of physical examination of the chest. Returning to Berlin, he soon became an eminent specialist for heart and lung diseases. As a member of the Mosaic confession, it was not till after the revolution of 1848 that he was admitted to the Charité Hospital as clinical assistant to the celebrated Schoenlein. He was the first civilian resident physician in the Charité, the other places being filled, as the majority of them are at present, by doctors of the army. In 1853 Traube became a clinical teacher, and acquired as such a high reputation. Virchow, who was associated with him by the similarity of their aims and studies no less than by personal friendship, has written his necrology in feeling expressions in the last number of the *Klin. Wochenschrift.*

—— in Dublin, April 19th, aged 61 years, Sir William Robert Wills Wilde, Surgeon-Oculist-in-Ordinary to the Queen in Ireland. Sir William established the first hospital for eye diseases in Ireland, was the author of a work on aural diseases and numerous papers on ophthalmology, archæology, statistics, etc., and for some years was the editor of the *Dublin Quarterly Journal of Medical Science*, and in the preface to the number for February, 1846, gave an able historical account of periodic medical literature in Ireland, embracing a period of 200 years.

—— in Paris May 8th, aged 63, M. Béhier, Professor of Clinical Medicine in the Hôtel Dieu. Since the death of Trousseau he has been esteemed one of the leading clinical teachers of Paris.

—— recently in Paris, J. F. Charrière, the celebrated surgeons' instrument maker, aged 74. He was not only celebrated for the perfection and finish of his instruments but for his great ingenuity. Surgery owes to him the invention of a number of most useful instruments.

NOTICE TO SUBSCRIBERS.

The present number of the "MEDICAL NEWS AND LIBRARY" contains the completion of Dr. STOKES'S LECTURES ON FEVER. In the July number will be commenced the publication of

CLINICAL LECTURES ON SURGERY, delivered in the Hospital of La Charité. By L. GOSSELIN, Professor of Clinical Surgery in the Faculty of Medicine, Paris, Surgeon to the Charité and Rothschild Hospitals, Member of the Institute (Academy of Sciences), President of the Academy of Medicine, Member of the Chirurgical Society, Commander of the Legion of Honor, etc. Translated from the French by LEWIS A. STIMSON, A.M., M.D., Surgeon to the Presbyterian Hospital, New York. *With Illustrations.*

SUMMARY OF CONTENTS.

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II. FRACTURES OF THE LIMBS—18 Lectures.
III. TRAUMATIC OSTEITIS AND NECROSIS—2 Lectures.
IV. TRAUMATIC FEVER, SEPTICÆMIA, AND PYÆMIA—4 Lectures.
V. DISEASES OF THE ARTICULATIONS—7 Lectures.
VI. PHLEGMON, ABSCESS, FISTULA—3 Lectures.

It will be seen from this brief abstract of the contents that these Lectures treat of subjects which are of daily interest to the practitioner, while some of them hardly received in the text-books the attention which their importance deserves. The very distinguished reputation of the author and the practical manner in which he has handled the topics before him are sufficient assurance that this work will be in every way satisfactory to the subscribers of the "MEDICAL NEWS AND LIBRARY," and that it will in no sense detract from the character of the very valuable series of books which have occupied the Library Department of the "NEWS" during the last thirty-three years.

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A PRACTICAL TREATISE ON DISEASES OF THE EYE. By R. BRUDENELL CARTER, F.R.C.S., Ophthalmic Surgeon to St. George's Hospital, etc. Edited, with Additions, by JOHN GREEN, M.D., of St. Louis, Mo. In one handsome octavo volume of about 500 pages, with test-types, and 124 illustrations.

It is with great pleasure that we can endorse the work as a most valuable contribution to practical ophthalmology. Mr. Carter never deviates from the end he has in view, and presents the subject in a clear and concise manner, easy of comprehension, and hence the more valuable. We would especially commend, however, as worthy of high praise, the manner in which the therapeutics of disease of the eye is elaborated, for here the author is particularly clear and practical, where other writers are unfortunately too often deficient. The final chapter is devoted to a discussion of the uses and selection of spectacles, and is admirably compact, plain, and useful, especially the paragraphs on the treatment of presbyopia and myopia. In conclusion, our thanks are due the author for many useful hints in the great subject of ophthalmic surgery and therapeutics, a field where of late years we glean but a few grains of sound wheat from a mass of chaff.—*N. Y. Med. Record*, Oct. 23, 1875.

A TREATISE ON THE SCIENCE AND PRACTICE OF MIDWIFERY. By W. S. PLAYFAIR, M.D., F.R.C.P., Professor of Obstetric Medicine in King's College, Physician for the Diseases of Women and Children to King's College Hospital, Examiner in Midwifery to the University of London, and lately to the Royal College of Physicians, Vice-President of the Obstetrical Society of London, &c. With several hundred illustrations. 1 large 8vo. vol.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on Abdominal Tumour. By C. F. Maunder, Esq. Delivered at the London Hospital, Jan. 11, 1876.

Gentlemen: I propose to address you to-day on a case which excited some interest when it was in the ward, by reason of the doubt which many of you had, before I saw it, concerning its nature—a doubt naturally raised by the positive statements of the patient. I often say and often request you in the wards to listen attentively to a patient's statement of his case, not with a view of necessarily acting upon it, for you must sift it, and discard that portion which you believe to be either unintentionally or wilfully untrue. I am afraid I must say that you should be more cautious with women than with men how you accept statements as regards their state of health. I believe it is not infrequent for women somewhat advanced in life, and who have been mothers, but with whom many years have elapsed since last pregnancy, to be uncertain about or even ignorant of their present and unexpected *enceinte* condition. I will read the case of the subject of this lecture.

Case of Abdominal Tumour (reported by

Published monthly by HENRY C. LEA, Nos. 706 & 708 Sansom Street, Philadelphia, *for One Dollar a year; also furnished* GRATUITOUSLY *to all subscribers of the "American Journal of the Medical Sciences," who remit the Annual Subscription, Five Dollars, in advance, in which case both periodicals are sent by mail free of postage.*

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Mr. T. W. Richardson).—Jane S——, married. admitted on Nov. 2d, 1875, into the Princess Royal ward, under Mr. Maunder. The patient stated that she had been married four years and a half, and, until two years and a half ago, she had had fairly good health. Had had no children, but nine months after marriage thought she miscarried. Two years and a half previous to admission the patient had suffered from some inflammatory condition of vagina and vulva, which had lasted during six weeks, leaving the vaginal orifice much contracted. There was no medical advice sought during this illness. Menstruation had been regular until eleven months ago, when it ceased altogether. About this time she had noticed a small *lump in the left side* (about left ovary), which had gradually grown larger; also occasionally she had felt *darting pains* about the swelling, but insufficient to prevent sleep or distress her much. Had no "morning sickness;" no discomfort in defecation, nor painful micturition. Four months ago her *legs* had begun

When this patient was questioned as to the possibility of pregnancy, she said that such a thing could not have occurred by any chance, since on account of this contraction of the vaginal orifice, attempts at coitus had been painful and unsuccessful, and that for the last six months it had been given up altogether. It was ascertained that there had been no penetration of the male organ for eighteen months.

On admission there was seen a large tumour occupying nearly the whole of the abdomen, smooth, movable, slightly unsymmetrical, projecting a little more on the right than the left side. The whole surface of the tumour was dull on percussion; slight fluctuation. At the sides of and around the tumour, the surface was tympanitic on percussion. The mammæ presented no particular indication of pregnancy. On examining the vulva, it was found that the labia majora and minora were completely obliterated, and there remained dense white scar-tissue. In the centre of this was a depressed and slightly corrugated opening, barely sufficient to admit the little finger, and quite impervious to the index finger. A catheter was introduced into the bladder, and urine drawn off.

Mr. Maunder, unable to examine the uterus per vaginam, introduced his finger into the rectum, and felt that the uterus moved with the tumour. For this and other stated reasons he then expressed an opinion that the most probable condition was pregnancy, but that certainly the swelling was within the uterus. On listening just below the umbilicus the fœtal heart was plainly heard beating about 140 per minute. The diagnosis was thus conclusive.

On Nov. 8th, at about 8 P. M., the patient was taken in labour in the ward; at 10 P. M. the head could be felt in the vagina through the small opening. Seeing it was impossible that the head could pass, chloroform was given, and the house-surgeon, Mr. John Job (in the absence of the resident accoucheur), with the little finger in the opening, enlarged it by an incision in an upward direction through the scar-tissue, and downwards through the perineum. It was then found that the sides of the entrance would not yield, and two more incisions were made, one on each side. Forceps were now applied, and the delivery effected in about five minutes. Child at full term and living.

The first point that strikes you is that this patient had no special object in deceiving us as to her condition. She had not previously borne a child, and therefore could not compare notes with her past and present state. Beyond the mechanical enlargement in the abdomen, the symptoms of pregnancy were comparitively negative. The condition of the mammæ did not help our diagnosis, and the swelling of the legs might be due to any mechanical obstacle pressing on the iliac veins. I have known a distended bladder cause such, and to be gone next morning when that viscus had been emptied. The pyriform shape of the swelling, its free mobility, and the whole being one with the uterus, appreciated per rectum, led me to express a decided opinion that the tumour, whatever its nature, was contained within the cavity of the uterus.

The abdominal cavity contains organs

common to both sexes, but that of the female some peculiar to her. On being called, then, to determine the nature of an abdominal swelling in the latter, various viscera liable to become enlarged, both from disease and physiological change, as in pregnancy, will be passed rapidly in review before your mind. The first question that you should endeavour to determine is—Is the tumour connected with a pelvic organ, or what is more properly termed an abdominal organ, or is it independent of both, as in ascites? or is it adventitious, as in the instance of an hydatid cyst? You should then proceed to determine the presence or absence of the most common forms of abdominal swelling, such as ascites, pregnancy, and ovarian tumour.

The next question for you to determine is whether the swelling be solid or fluid. Both will be dull on percussion, whilst one will fluctuate. The presence of gas you will of course recognize by tympanites. Having determined the existence of fluid, you ask: Is it circumscribed or not? and you will answer the question in the affirmative on finding dulness on percussion limited in all positions of the patient. Should this latter condition be present, then you at once eliminate ascites, because, as the fluid in this instance is only confined by the peritoneum, it gravitates in all positions of the patient, rendering the lowest parts dull on percussion, whilst the uppermost will be resonant from the presence of intestines containing gas and floating on the surface of the fluid. For example, when a patient thus affected lies on the left side, this will be dull, while the right will be resonant, and *vice versâ*.

We now wish to determine whether or not the tumour be connected with the pelvic organs, such as bladder, uterus, ovary. And there is one circumstance common to all three; as they enlarge and rise out of the pelvis, they approach the anterior abdominal wall and push aside other organs, especially the intestines; and thus one evidence that the tumour is pelvic in origin is that the lower regions of the abdomen are dull on percussion, while, on the contrary, if the tumour spring from above and be in connection with the liver or spleen, etc., the upper regions are then dull on percussion.

The next step is to differentiate the three pelvic sources of tumour—bladder, uterus, and ovary. The finger in the vagina or rectum will appreciate the distended bladder or uterus, and the catheter will settle the question between these two.

Case of Distended Bladder.—To assist your diagnosis, never hesitate to use a catheter. Many years ago I came to the bedside of a patient who had been admitted with a contused shoulder. She drew my attention to a "swelling in her stomach," as she called it; and then exposed to view a decided tumour, unsymmetrical, inclining to the right side, and occupying the hypogastric and umbilical regions. It gave her no trouble, the history of it was indifferent, and she had just passed a good half pint of healthy urine. It was dull on percussion, and fluctuating. My mind reverted to ovarian dropsy; but, following my custom, a catheter was passed, several pints of urine were drawn off, and the tumour disappeared. I suppose the unequal length of the ligaments will explain the unsymmetrical appearance mentioned. The pregnant uterus is pyriform in shape, and freely movable in the abdomen. Fluctuation can sometimes be detected, as in the above case; whilst, by the finger in the vagina, the shortened cervix can be felt lost in, and continuous with, a firm tumour covering in the roof of the vagina. Independently of physiological symptoms and other physical signs, I rely upon this to determine that the tumour is not ovarian.

But I must also mention a possible source of error as regards the bladder. Some years ago a man about twenty-two years of age was brought into the receiving-room, and was there seen by two senior colleagues, who attempted and failed to pass a catheter. The patient was the subject of retention of urine, with a well marked hypogastric tumour. I was requested to take charge of the case. On examination per rectum, etc., all the symptoms of distended bladder existed. I punctured the fluctuating tumour per rectum, and drew off a large quantity of clear, limpid fluid. As the tumour was emptied, to my surprise, urine flowed freely per urethram. The patient ultimately died of peritonitis. Numerous hydatid cysts, which had caused this, were found scattered about the peritoneal cavity, while one large one, extra-peritoneal, and occupying the pelvis, proved to be the supposed distended bladder.

I shall say little about enlargements of the liver and spleen, as the diseases of these belong more especially to the physician; but two sources of error, as regards the stomach, are worthy of mention, which have come under my care.

Cystic Tumour of the Stomach.—A young woman, some eighteen years of age, was admitted under Dr. Sutton, and handed over to me as the subject of ovarian disease. The tumour filled the belly, was dull on percussion, and fluctuating everywhere, excepting in the loins, which were tympanitic. I proceeded to perform ovariotomy, and as the sac was emptied of its contents, and itself gradually withdrawn through the wound, its attachment led me up to the stomach, instead of downwards to the pelvis. The patient died, and proved to be the subject of several cysts connected with malignant disease of the wall of the stomach. In this case the absence of tympanites below the tumour, by reason of its size, rendered an accurate diagnosis impossible. I show you the stomach and the remnant of the cyst.

Distended Stomach.—Another case is that of a female about forty-five years of age, sent to me as being the subject of ovarian disease. In this instance a line of tympanites below the swelling settled that question in the negative at once. My house-surgeon, Mr. Vialls, took a cast of the abdomen during life, and I have it here. My opinion was that the swelling was a distended stomach, and so on post-mortem examination it proved to be, and consequent on obstructive disease of the pylorus. When the patient was sitting up the tumour was dull on percussion and fluctuating, when recumbent it was more or less tympanitic as the gases came to the surface. The size of the tumour varied in proportion to the vomiting. I am not aware that such a state of stomach has been elsewhere recorded.—*Lancet*, Feb. 26, 1876.

HOSPITAL NOTES AND GLEANINGS.

Foreign Body in Windpipe; a successful Method of Operation.—Mr. MAUNDER, on the 12th of May, removed from the left bronchus of a boy, aged thirteen (an in-patient of the London Hospital), a smooth oval piece of glass an inch long, and forming part of a sleeve link. It had been in the trachea eighteen days without symptoms, and about thirty hours before operation had fallen into the left bronchus. After consultation with Dr. Down, tracheotomy was performed, the patient was inverted and shaken, but with no avail. A loop of stout silver wire was then passed six or seven inches through the wound downwards, and to the left; on the wire being withdrawn, the foreign body came with it. The patient is well. —*Med. Times and Gaz.*, May 27, 1876.

Case of Hæmatokolpos; Operation; Recovery.—The following case was admitted into the Birmingham and Midland Hospital for Women, under the care of Mr. LAWSON TAIT:—

E. T——, aged eighteen, had menstruated regularly for two years, but the discharge was very scanty and accompanied by agonizing pain. She had applied at various institutions without obtaining relief.

Vaginal examination, made under ether, revealed a mass occupying the pelvis, in the position and about the size of the uterus pregnant as far as the third month. No cervix could be made out, but at one point, close to the rectum, there was a small circular patch about the size of a shilling, where there was pseudo-fluctuation, and the feeling was as if a membrane were stretched tightly over the mouth of an elastic bottle.

Believing this to be the cervix uteri, Mr. Tait freely incised it, and thereby evacuated a large quantity of the usual treacly fluid which represents retained menstrual blood.

The patient recovered rapidly, and the

wound has remained patent, so that she now menstruates without the slightest pain.

The only puzzling element in this case was the history, for it is beyond doubt that every month a menstrual discharge took place, and if great weight had been attached to this the diagnosis would have been greatly complicated.

As the patient was perfectly virginal, it cannot be supposed that the closure of the os was due to injury.—*Lancet*, March, 4, 1876.

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Separation of Epiphysis of Anterior Inferior Spinous Process of Ilium by Muscular Action.—The following case was treated by Mr. **Maunder** at the London Hospital:—

W. G——, aged eighteen, was admitted into the hospital on April the 5th. He stated that on the previous day, while running in a flat-race, he thought it necessary to "put on a spurt," and whilst doing so suddenly felt a sharp snap, followed by acute pain in the right groin, and accompanied by a sensation of "something being out of its place." He also found that he could not advance his right foot another step, but being within a few feet of the winning-post, he threw himself forwards, and, grasping it, saved himself from falling. He then found it impossible to stand upright without great pain in the right groin, which was somewhat relieved by resuming the stooping posture. He was carried off the field by his companions.

On admission the patient was found to be a strong, healthy-looking lad, with well-formed limbs, and exhibiting no evidence of bone or other disease. There was no history of syphilis, strumous disease, or rickets; and he had ten brothers and sisters who were all healthy. He was observed to lie flat on his back with the thighs extended and the right foot slightly everted. He could rotate the right thigh inwards or outwards, but with slight pain. There was total inability to flex the thigh upon the pelvis, and the attempt to do so caused great pain in the groin. A little fulness was evident in the position of the spinous processes, and the inferior spinous process (the attachment of the straight tendon of the rectus-femoris muscle) was found to be detached and freely movable. Cartilaginous crepitus was very distinctly felt, both by the patient and the surgeon. This, and taking into consideration the patient's age—eighteen (the epiphysis unites with the rest of the bone at about the age of twenty-five)—led to the conclusion that it was a case of separation of the epiphysis. The patient was simply kept in bed, the thigh flexed in order to relax the rectus-femoris muscle, and a couple of pillows were placed under the knees.

April 21. All pain and crepitus on manipulation had disappeared, and patient could flex the thigh without discomfort.

25*th*. Firm union had evidently taken place, and patient could walk about the wards with ease. Discharged.

The above case is very interesting on account of its extreme rarity.—*Lancet*, May 6, 1876.

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Dislocation of the Foot backwards, with Fracture of the Fibula; Division of the Tendo Achillis; Recovery. — A patient suffering from this somewhat unusual form of injury has recently been under treatment in Mr. **Harrison**'s ward in the Liverpool Royal Infirmary. M. T——, aged twenty-eight, was admitted into the infirmary on Dec. 26, 1875, in consequence of an injury to the foot caused by a slip from the curbstone. On examination the nature of the injury was readily determined. There was shortening of the anterior surface of the foot and elongation of the heel. The toes were pointed downwards. The fibula was fractured obliquely two inches above the malleolus. The tendo Achillis was extremely tense.

Reduction was readily effected by flexing the leg and applying extension to the foot, but by no apparatus or position could the foot be kept in position. Mr. Harrison had the patient placed under ether, and divided the tendo Achillis subcutaneously. The leg was then placed on an iron back splint, with the foot at right angles. By these means the normal position of the parts was maintained, the patient making a good recovery. In six weeks the limb was placed in a plaster-of-Paris bandage, and the patient left the infirmary. He has since been seen, the report being in every respect favourable.

In speaking of this case, Mr. Harrison said that he had only met with two other instances where the injury was precisely similar. In both of these it was found necessary to divide the tendo Achillis. He looked upon this injury as one where the division of the tendon was an essential part of the treatment; in the instances alluded to, its adoption had simplified the management of the injury, and had in no way interfered with the future usefulness of the limb.

Mr. Cock and Mr. Bryant have both recorded instances of dislocation of the foot backwards, where a similar proceeding was found necessary, from the difficulty experienced in retaining the foot in its position after reduction had been effected.—*Lancet*, May 13, 1876.

MEDICAL NEWS.

ORIGINAL ARTICLES.

Chloral Hydrate; A Disinfectant and Ectrotic in Variola. By E. G. Coleman, M.D., Arkadelphia, Arkansas.—A case of variola, occurring in an infant four weeks of age, and which proved to be of the semi-confluent variety, came into my charge on the second day of the eruption, and I determined to use the hydrate of chloral with a view to the above effects.

As a sedative, it seemed to answer remarkably well, for the child manifested but little desire for scratching, neither did it appear very restless. As a disinfectant, ℥ij to the pint of water, it was more efficient than either carbolic or salicylic acid, or the chlorinated soda (Labarraque's solution), which had previously been tried with but negative results at the best. As an ectrotic remedy, one case is not sufficient upon which to base a conclusion, yet the pustules certainly did abort, the pus dried up, and the crusts fell off. The chloral was used daily as a wash, 15 grs. to the pint of warm water.

DOMESTIC INTELLIGENCE.

Brom-hydrate of Quinia.—Dr. Geo. B. Orr presented to the Cincinnati Academy of Medicine, a specimen of this article, and stated that for two weeks he had been testing it in the same doses as he had been accustomed to administer the sulphate. He considered the brom-hydrate twenty times as soluble as the sulphate. Its ready solubility causes it to be quickly absorbed, and its constitutional effects to be more rapidly produced. Hence, in the treatment of intermittent fever, it need not be administered so long before the expected chill.—*The Clinic*, May 13, 1876.

Hypodermic Injections of Cold Water for Relief of Pain.—There appeared in the February number of the *Medical News and Library* an extract from a communication in *L'Union Médicale*, by Dr. Lélut, on the relief of pain by hypodermic injections of cold water. This appeared to Dr. S. Henry Dessau not only a novel but such a ready method for the relief of pain, that he determined to give it a trial at the very first opportunity, and adds his testimony to the efficacy and promptness of the remedy by reporting (*New York Med. Journ.*, June, 1876) seven cases in which it was most successfully used.

Death from Ether.—Dr. E. L. Holmes, of Chicago, reports (*Chicago Med. Journ. and Examiner*, May, 1876) a case of death following the administration of ether, for the extraction of cataract.

International Medical Congress. — The Centennial Medical Commission have been advised by the following distinguished foreigners, in addition to those already announced, of their intention of attending the Congress: S. Englested, of Copenhagen; M. Barreta, of Mexico; Prof. Alexander R. Simpson, of the University of Edinburgh; Mr. Henry Power, of London; Prof. Hüter, of Greifswald; Mr. J. Langdon Down, Physician to the London Hospital; Mr. Richard Davy, Secretary of the Medical Society of London; Mr. Finlay, of Edinburgh;

Prof. Lange, of Copenhagen; Mr. Hansen, President Med. Soc. of Copenhagen; Mr. Alfred Haviland, of England, and Mr. Estlander, of Helsingfors, Russia.

Dr. Max Pettenkofer will present a paper on Cholera.

Delegates from different American Societies have been appointed as follows:—

American Medical Association.—Drs. H. I. Bowditch, Massachusetts; E. Seguin, New York; Thomas L. Madden, Tennessee; J. S. Wellford, Virginia; A. Dunlap, Ohio; John T. Hodgen, Missouri; Jos Carson, Pennsylvania; John C. Dalton, New York; W. O. Baldwin, Alabama; D. W. Yandell, Kentucky; N. S. Davis, Illinois; Austin Flint, Sr., New York; T. G. Richardson, Louisiana; W. F. Westmoreland, Georgia; A. M. Pollock, Pennsylvania; Frank Hastings Hamilton, New York; S. M. Bemiss, Louisiana; L. A. Dugas, Georgia; Francis Bacon, Connecticut; Hunter McGuire, Virginia; A. J. Shurtleff, California; E. M. Moore, New York; O.W. Holmes, Massachusetts; G. A. Otis, U. S. A.; T. E. Gunnell, U. S. A.; E. C. Harwood, New York.

Association of Medical Superintendents of American Institutions for the Insane.—Drs. T. S. Kirkbride and Isaac Ray, of Philadelphia; John Curwen, of Harrisburg; C. A. Walker, of Boston, Mass.; Pliny Earle, of Northampton, Mass.; John P. Gray, of Utica, N. Y.; D. Tilden Brown, of New York; H. A. Buttolph, of Morristown, N. J.; Orpheus Evarts, of Indianapolis, Ind.; Charles H. Nichols, of Washington, D. C.; Walter Kempster, of Oshkosh, Wis.; C. H. Hughes, of St. Louis, Mo.; H. C. Carrell, of Jacksonville, Ill.; J. H. Callender, of Nashville, Tenn.; W. S. Chipley, of Cincinnati, Ohio; James Rodman, of Hopkinsville, Ky.; Eugene Grissom, of Raleigh, N. C.; C. K. Bartlett, of St. Peter, Minn.; A. M. Shew, of Middletown, Conn.; James R. DeWolf, of Halifax, N. S.

Pennsylvania State Medical Society.—Drs. Joseph Swartz, of Perry; W. Murray Friedman, of Berks; S. B. Kieffer, of Cumberland; W. I. Langfitt, of Beaver; Wm. Anderson, of Indiana; J. L. Atlee, of Lancaster; I. W. Anawalt, of Westmoreland; Amos Seip, of Northampton; John T. Carpenter, of Schuylkill; J. L. Stewart, of Erie; A. H. Sheaffer, of Mifflin; Wm. Irvin, of Butler; R. J. Dunglison, L. Trumbull, Geo. Strawbridge, S. D. Gross, R. E. Rodgers, of Philadelphia; G. W. Underwood, of Luzerne; W. L. Richardson, of Susquehanna; John D. Ross, of Blair; A. M. Pollock, of Alleghany; H. L. Orth, of Dauphin; Wm. Savery, of Montgomery; and L. B. Kline, of Columbia.

Medical Society of New Jersey.—Drs. J. M. Ridge, John Woolverton, Ezra M. Hunt, John C. Johnson, Charles Hasbrouck, Abram Coles, and A. A. Lutkins.

Indiana State Medical Society.—Drs. Theopilus Parvin, George W. Mears, S. E. Mumford, F. W. Beard, J. H. Stilwell, J. G. Rogers, George Sutton, W. Hobbs, J. C. Walker, Ezra Reed, T. Higday, G. N. Fitch, H. P. Ayres, and H. D. Wood.

Missouri Medical Association.—Drs. J. B. Johnson, John T. Hodgen, H. N. Spencer, C. H. Hughes, Wm. Dickinson, A. P. Lankford, W. J. Heddens, J. E. Tefft, Torrey, G. B. Winston, A. M. McAllister, and Gregory.

Medical Society of the State of Michigan.—Drs. Eugene Smith, Donald Maclean, Edward Cox, H. O. Hitchcock, C. Shepard, H. B. Baker, Wm. Brownell, H. Tupper, and Wm. Brodie.

American Medical Association.—The twenty-seventh annual meeting of this Association was opened in Horticultural Hall, Philadelphia, on Tuesday, June 6th, 1876; Dr. J. Marion Sims, of New York, President, in the chair.

Dr. William Pepper, Chairman of the Committee of Arrangements, in a short speech, welcomed the delegates.

The following gentlemen were invited to seats upon the platform: Surgeon-General Wm. Roth, 12th Corps (Royal Saxon) German army, and staff, viz.: Asst. Surgeon Hans Heymann and Dr. Max Brille; Dr. Wywoodzoff, of St. Petersburg, of the Russian Centennial Commission; Surgeon-General J. K. Barnes, U. S. A.; Dr. Jaffray, of the Parisian press; Dr. Wilhelm Hiorth, and Dr. H. G. Holst, medical directors, Christiania, Norway.

The President delivered his annual address.

June 7. A Committee on Nominations of one from each State was appointed.

The Judicial Council reported that the delegates from the Arkansas State Medical Society were entitled to seats in the Association.

Dr. Kedzie, of Michigan, read the Address on State Medicine and Public Hygiene. His subject was Natural Purifiers —air and water. He pointed out the mistakes of the founders of cities in not properly protecting for the use of the citizens the water courses which pass through its borders. He closed by offering the following resolutions :—

Resolved, That it is the first duty of States and municipalities, first in importance, and first in the order of time, to make a sanitary survey of the water supply to preserve it against all unnecessary and avoidable contamination.

Resolved, That no municipality should introduce a water system without at the same time providing a corresponding and coextensive sewerage system. The resolutions were adopted.

The reports of the Treasurer showing an unexpended balance of $4577, and of the Publication Committee, and of the Librarian were read and accepted.

Dr. A. Garcelon, of Maine, delivered the Address in Surgery.

The Committee on Prize Essays reported that the essay on Resections of Joints by Dr. H. Culbertson, of Zanesville, Ohio, was deemed worthy the prize offered by the Association. On account of its great length it was thought inexpedient to publish it in the Transactions.

On motion of Dr. L. A. Sayre, of New York, it was resolved to publish the report with the transactions of the Association.

Dr. Edward Seguin, of New York, offered the following resolution, which was adopted :—

Resolved, That this Association charges its delegates to continue to advocate the uniformity of means of observations as hitherto at the International Medical Congress to be held in September.

On motion, 5000 or more copies were ordered to be printed of the President's address, in which legal enactments are recommended for the prevention of syphilis, for lay distribution by the delegates.

Dr. Harwood, of New York, one of the representatives of the Association at the International Medical Congress at Brussels, made a report.

A memoir of the late Dr. Armsby of Albany, N. Y., founder of the Medical School in that city, prepared by Dr. Hailes, of Albany, was referred to the Committee on Publication.

June 8. The address in Obstetrics was delivered by Dr. S. C. Busey, of Washington, D. C.

The Secretary read the list of delegates who had registered, 730 in number. Objection was made to the admission of delegates from the Michigan State Medical Society, and charges were presented against the Society. Referred to the Judicial Council.

Objection was made to the admission of Sarah H. Stevens, a delegate from the Illinois State Medical Society.

Dr. Brodie, of Michigan, moved to refer her name and all kindred names to the Judicial Council. Laid on the table.

A resolution was referred to the Judicial Council, declaring that it would not be derogatory for a medical practitioner to take out a patent for a surgical instrument.

The Trustees of the Fund for a monument to the late Dr. McDowell, of Kentucky, reported a balance in hand of $154; several motions were made with a view to increase funds for that object, but were declared to be out of order at that time.

Dr. Henry A. Martin, of Massachusetts, moved that a committee be appointed by the chairman to take into consideration the subject of bovine vaccination as compared with the usual arm to arm practice, to report at the next annual meeting. Passed.

June 9. On motion of Dr. Toner, of District of Columbia, it was *resolved*, That the members of the medical profession, who in any way aid or abet the graduation of medical students in irregular or exclusive systems of medicine, are deemed thereby to violate the spirit of the ethics of the American Medical Association.

Dr. Atkinson, Secretary, reported, that, in obedience to a resolution adopted at the last meeting, he had addressed inquiries to the authorities of different States, in reply to which he is informed that boards of health exist in Alabama, California, Georgia, Massachusetts, Michigan, Minnesota, Virginia, and Wisconsin. From Delaware, Indiana, Iowa, Nebraska, New Jersey, New York, South Carolina, Texas, and Vermont the results of his inquiries were almost negative.

Dr. H. C. Wood, of Pennsylvania, offered the following resolution, which was adopted :—

Resolved, That a Committee of Three be appointed by the Chair to obtain from Congress an appropriation for the publication of a subject catalogue of the National Medical Library, and that the State Societies are requested to take such action as may be deemed fit to further said object.

The Committee on Nominations presented the following report, which was unanimously adopted.

President—Dr. Henry I. Bowditch, of Massachusetts.

Vice-Presidents—Dr. N. J. Pittman, of North Carolina; Dr. Franklin Staples, of Minnesota; Dr. Joseph R Smith, of U. S. Army; Dr. Samuel C. Busey, of District of Columbia.

Treasurer—Dr. Casper Wistar, M.D., of Pennsylvania.

Librarian—Dr. Wm. Lee, District of Columbia.

Assistant Secretary—Dr. J. H. Hollister, of Illinois.

Committee of Arrangements—Dr. N. S. Davis, Dr. J. W. Freer, Dr. H. A. Johnson, Dr. T. D. Fitch, Dr. H. W. Jones, Dr. Jos. P. Ross, Dr. Lesley Curtis, all of Illinois.

Committee on Publication—Dr. W. B. Atkinson, T. M. Drysdale, Dr. Albert Fricke, Dr. Samuel D. Gross, Dr. Casper Wistar, Dr. Richard J. Dunglison, of Pennsylvania; and Dr. William Lee, of District of Columbia.

Next place of meeting, Chicago; time, first Tuesday of June, 1877.

Judicial Council—Dr. N. S. Davis, Illinois; Dr. E. L. Howard, Maryland; Dr. W. O. Baldwin, Alabama; Dr. H. W. Dean, New York; Dr. A. N. Talley, South Carolina; Dr. J. P. Logan, Georgia; Dr. D. M. Stormont, Kansas; in place of seven whose terms expire at this meeting.

Committee on Prize Essays—Dr. N. S. Davis, Dr. Edmund Andrews, Dr. E. Ingalls, Dr. Moses Gunn, Dr. E. P. Cook, all of Illinois.

Dr. Bell, of Iowa, offered the following resolution, which was adopted :—

Resolved, That there be appointed a committee of three, members of this Association, in each of the States where there has been no action taken for the establishment of Boards of Health, to urge upon those States the necessity of the establishment of such Boards.

On motion the salary of Dr. Wm. B. Atkinson, the permanent secretary, was made $1000 for the past year.

Dr. Atlee and Dr. Toner were appointed a committee to conduct the new President, Dr. Bowditch, to the stand, where he was greeted with great applause.

Dr. Squibb, of Brooklyn, introduced the following resolutions :—

Whereas, The usual time for a decennial revision of the United States Pharmacopœia is drawing near; and

Whereas, the plan of revision and publication in force in 1820 may not now be the best that could be devised; therefore,

Resolved, That the American Medical Association take the whole subject of the National Pharmacopœia into consideration for a review of its management, and for the present time, with special reference to the following questions :—

First. Whether the present plan of decennial revision and publication be practically sufficient for the needs of the materia medica and pharmacy of the present time; and if not sufficient, whether a plan could be devised which might offer probable advantages enough to justify an attempt to disturb the present one.

Second. Whether this Association be the proper custodian in this country of the interests involved in the National Pharmacopœia, and if it be the proper source of the National Codex, whom can we invite to co-operate with it in the work?

Third. If it be a work for this Association, in what way can its details be wisely undertaken with any prospect of material improvement upon the present plan?

Resolved, That in order to facilitate mature and general deliberation upon so important a subject, the final discussion of these resolutions be laid over for at least one year, and that the matter be recommended to the President of the Association for consideration in his annual address for the meeting of 1877.

He proposed, generally, that a Council should be formed composed of eight members, two to be appointed by this Association, two by the Pharmaceutical Association, two by the Surgeon General U. S. A., and two by the Surgeon General U. S. N., who should take charge of the revision in 1880.

The resolutions were adopted, and the subject was made the order of business for the morning of the second day of the next Convention, at which time Dr. Squibb is to present the subject in detail. On motion the Convention then adjourned *sine die.*

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Proceedings of the Association of the Representatives of American Medical Colleges —A convention of representatives of numerous medical colleges of the United States was held in the hall of the Jefferson Medical College of Philadelphia, June 2d and 3d, 1876.

The following colleges were represented:—

Jefferson Medical College of Philadelphia, University of Pennsylvania, College Physicians and Surgeons of New York, University of Louisville, Hospital College of Medicine of Louisville, Long Island Hospital Medical College, University of Iowa, College of Physicians and Surgeons Syracuse University, Chicago Medical College, University of Georgia, Indiana Medical College, University of Wooster, Cleveland Medical College, Detroit Medical College, Starling Medical College, University of Vermont, St. Louis Medical College, Atlanta Medical College, University of Nashville, Vanderbilt University, Missouri Medical College, Keokuk College Physicians and Surgeons, Columbus Medical College.

On motion, Prof. J. B. Biddle, of Jefferson Medical College, was elected President of the convention, and Prof. Leartus Connor, of Detroit Medical College, was elected Secretary.

On motion of Prof. E. Curtis, of College of Physicians and Surgeons of New York, it was

Resolved, That the action of the convention shall not be considered binding upon the colleges represented unless indorsed by their respective faculties.

On motion of Prof. Gross, of Jefferson Medical College, it was

Resolved, That a committee be appointed to submit business for the consideration of the convention, to report at the afternoon session.

Prof. Bodine, of the University of Louisville, from the committee to prepare business for the convention, reported the following questions for its consideration:—

1. Shall the beneficiary system, with its present abuses, be condemned or indorsed?

After discussion, on motion of Prof E. Curtis, the following preamble and resolutions were adopted with reference to question first:—

Whereas, The practice of reducing or remitting in individual cases the established fees of a college has the objectionable feature of discriminating between students who may be equally deserving, and opening the door to possible gross abuses; therefore

Resolved, *first*, That this convention regards the above privilege as one to be deprecated in general, and, if put into practice at all, to be exercised both rarely and reluctantly, and only in unusual circumstances, and after unsolicited application by proven deserving candidates.

Resolved, *second*, That anything like a wholesale system of such reduction or remission of established fees, or any open solicitation of recipients of such favours, be regarded as in the highest degree improper, and that any college indulging in such practices deserves to forfeit its place on the *ad eundem* list of medical colleges.

Question 2. Shall two consecutive courses of lectures in one year entitle students to become candidates for graduation?

On motion of Prof. E. Curtis, it was

Resolved, That it is the opinion of this convention that no two consecutive sets of lecture tickets shall be regarded as fulfilling the usual prerequisites of instruction for graduation, where the time between the beginning of the first course and the end of the second is less than fifteen months.

Question 3. Shall any faculty under any circumstances issue a diploma not bearing the graduate's name?

On motion of Prof. Waterman, of the Indiana Medical College, it was

Resolved, That no medical faculty should issue a diploma not bearing the graduate's name.

On motion of Prof. L. P. Yandell, Jr., of University of Louisville, the regular order of business was suspended, and communications were read from the faculties of the following medical colleges: Louisville Medical College, Kentucky School of Medicine, Evansville Medical College, Rush Medical College, Medical Department University Louisiana, Medical School of Harvard University, Savannah Medical College, Cincinnati College of Medicine and Surgery, Medical College of State of South Carolina.

On motion, these communications were placed on file.

Question 4. Shall this convention resolve itself into a permanent organization?

On motion of Prof. Atchison, of Vanderbilt University, it was

Resolved, That the question be referred to a committee of five, to report at the afternoon session.

Question 5. Is there any reason why the customary diploma fee shall be abolished?

On motion of Prof. Rogers, of University of Pennsylvania, it was

Resolved, That it is the sense of the convention that the diploma fee should not be abolished.

Question 6. Is it advisable to adopt a graded course of study?

On motion of Prof. Bodine, the following preamble and resolution were adopted in reference to this question:—

Whereas, A knowledge of the elementary branches of medicine should precede a study of the practical branches:

Resolved, That, in the hope of inducing students to prolong and systematize their studies, this convention recommends to all medical colleges to offer to students the option of three courses of lectures, after a plan similar to the following: Students who have attended two full courses of lectures on anatomy, chemistry, materia medica, and physiology, may be examined upon any of these subjects at the end of their second course. During their third course such students may devote themselves to the lectures upon the theory and practice of medicine, surgery, obstetrics, and diseases of women and children, upon which subjects only they shall be examined at the final examination for the degree of M.D.—their standing, however, to be determined by the results of both examinations.

Prof. Atchison, from the committee to whom the subject of permanent organization was referred, reported the following resolutions:—

Resolved, 1, That this *convention* now proceed to form a Provisional Association of American Medical Colleges, under its present officers.

Resolved, 2, That when the Association adjourns, it shall adjourn to meet at the call of its president.

Resolved, 3, That the various medical colleges be invited to take into consideration the project of forming, at the next meeting of this Provisional Association, a permanent Association of American Medical Colleges.

Resolved, 4, That for the furtherance of this object, a committee of three be appointed at this meeting to confer by letter with the various colleges, and invite their views on the proper object and plan of such proposed organization; and upon the receipt of the same, to draft a constitution and by-laws for a permanent Association, to be submitted at the next meeting of this Association.

Resolved, 5, That the advisory resolutions upon matters of college policy passed by this convention be printed and forwarded to all regular medical colleges in the United States for their consideration.

The Chair appointed as committee to carry out the foregoing resolutions, Prof. T. A. Atchison, Prof. Edward Curtis, and Prof. L. P. Yandell, Jr.

These resolutions were adopted, and the convention resolved itself into the Provisional Association of American Medical Colleges.

Question 7. Is it proper for a regular college to have any kind of alliance with homœopathy?

On motion of Prof. Atchison, it was unanimously

Resolved, That in the opinion of this Association, medical colleges ought not to recognize or hold fellowship with any school or its alumni in which irregular medicine is taught as a part of the curriculum.

Question 8. Can college fees be made uniform?

On motion of Prof. Geddings, of University of Georgia, this question was referred to a committee of five, to report at the meeting of the Association to be held in 1877.

The chair appointed Profs. Geddings, Gross, Angier, of Keokuk College of Physicians and Surgeons, E. Curtis, and L. Curtis, of Chicago Medical College, this committee.

On motion of Prof. Biddle, the following resolution was unanimously adopted:—

No degree in medicine should be conferred, under any circumstances, except after an examination in person of the candidate upon all the branches of medicine.

On motion, the Association adjourned to meet at the call of the president.

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American Gynæcological Society. — A number of prominent gynæcologists met on June 3d, and organized the "American Gynæcological Society," and elected the following officers for the present year: President, Dr. Fordyce Barker, of New York. Vice-Presidents, Drs. W. L. Atlee, of Philadelphia, and W. H. Byford, of Chicago. Secretary, Dr. James R. Chadwick, of Boston. Treasurer, Dr. Paul F. Mundé, of New York. The meetings are to be held annually. The first will be held in New York on the 13th of September next.

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Connecticut Medical Society.—At the annual meeting of this society, held in New Haven, May 24th and 25th, the following officers were elected for the ensuing year: President, Dr. A. W. Barrows, of Hartford. Vice-President, Dr. R. Hubbard, of Bridgeport. Secretary, C. W. Chamberlain, of Hartford.

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Pennsylvania State Medical Society. — The annual meeting of this society was convened in Philadelphia on the 31st of May, Dr. Crawford, President, in the chair. The following officers were elected for the ensuing year: President, Dr. R. B. Mowry; Vice-Presidents, Drs. George W. Reily, Amos Seip, Thomas Lyon, and D. P. Miller. Secretary, Dr. W. B. Atkinson. Next place of meeting is Harrisburgh.

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Medical Society of New Jersey. — The 110th Annual Meeting of this Society was held at Cape May on the 23d of May. The following officers were elected for the ensuing year: President, John V. Schenck, M.D.; Vice-Presidents, Drs. H. R. Baldwin, John S. Cook, and A. W. Rodgers; Secretary, Wm. Pierson, Jr. The next annual meeting will be held at Trenton.

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Indiana State Medical Society. — The twenty-sixth annual meeting of this Society was held at Indianapolis, May 16th and 17th. Dr. J. H. Helm, of Peru, presiding. The following officers were elected for the ensuing year: President, Dr. S. S. Boyd. Vice-President, Dr. E. D. Laughlin. Secretary, Dr. G. V. Woolen.

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Missouri State Medical Association.—The tenth annual meeting was held in St. Louis on the 18th of April, John T. Hodgen, M.D., President, in the chair. The following officers were elected for the ensuing year. President, Dr. J. W. Trader, of Sedalia. Vice-Presidents, Drs. E. W. Schauffler, of Kansas City; H. H. Middlekamp, of Warrenton; W. J. Heddens, of St. Joe; W. E. Glenn, of Rolla; and J. S. Newman, of St. Louis. Secretary, H. N. Spencer, of St. Louis. The next meeting will be held at Kansas City.

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Michigan State Medical Society. — The Tenth Annual Meeting of this Society was opened on the 10th of May at Ann Arbor, the President, Dr. Brodie, in the Chair. The most important business transacted was in connection with the report of a committee of nine, to which was referred, without reading or debate, all motions or resolutions concerning the Medical Department of the University of Michigan, which has had grafted on it a department of homœopathy. The report says (*Detroit Review*, June, 1876): "The Regents equipped the new college with two professors—one of practice and one of therapeutics; required five of the former professors — viz., of anatomy, physiology, surgery, obstetrics, and chemistry—to supplement the deficiencies of the new department, and to become, with the two homœopathic professors, the teachers of registered homœopathic students, and with this requirement the professors named have complied. . . .

"Of the action of the medical faculty in accepting or acquiescing in these radical changes of their relations to the medical department, but little need be said. . . . . It is enough to say that Dr. Sager, of the medical faculty, and for many years its Dean, has refused to approve or accept the amalgamation, and has resigned his position. All the other members of the faculty have remained—whether because they approved or acquiesced in the arrangement, it is not important to inquire; it is but proper to state, however, that no evidence has been produced which shows that, as a faculty, they have relinquished, in any degree, their opposition to the introduction of homœopathy into the institution, but, on the contrary, we have their personal assurances that, while the question was pending in the Legislature, they refused to make any concessions, and when the act was passed, and the Regents decided to incorporate the new department into the University, the situation was accepted by them as an "accomplished fact," and "without approval or disapproval."

The committee reported the following resolutions:—

Resolved, 1st, That we are not content with the existing situation of the Medical Department of the University, because, in our opinion, it is not calculated to maintain or advance medicine as a science, nor is it consistent with the honour or interest of the profession.

Resolved, 2d, That a State under our form of government cannot successfully teach either medicine or theology, and that the medical profession ought to be its own teacher and the guardian of its own honour

Resolved, 3d, That we regard all legislative interference with the government of the University as unconstitutional, wrong in principle, and harmful in its results.

Resolved, 4th, That Section 4 of the Constitution of this State Society be amended so as to read as follows, viz.: "Section 4. The resident members shall be elected by vote of a majority present at any regular meeting, their eligibility having previously been reported upon by the Committee on Admission; *Provided*, That no person shall be admitted to membership who practises or professes to practise in accordance with any so-called 'pathy' or sectarian school of medicine, or who has recently graduated from a medical school whose professors teach or assist in teaching those who propose to graduate in or practise irregular medicine."

The first three resolutions were adopted by a large majority, and the fourth, being in the form of an amendment to the Constitution, was laid over for one year.

The following officers were elected for the ensuing year: President, Dr. A. Sager; Vice-Presidents, Drs. Foster Pratt, Eugene Smith, Wm. Parmenter, and G. K. Johnson; Secretary, Dr. G. E. Ranney. The next meeting will be held at Battle Creek.

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California State Medical Society.—The sixth annual meeting was convened in

San Francisco on the 19th of April, Dr. A. B. Nixon presiding. The following officers were elected for the ensuing year. President, Dr. W. Fitch Cheney, of Butte. Vice-Presidents, Drs. B. D. Dean, of San Francisco; W. S. Hamlin, of Yuba City; Pond, of Napa; and Todd, of Stockton. Secretary, Dr. Tyrrell, of Sacramento. Place of next meeting San Francisco.

No delegates appear to have been appointed to the International Medical Congress, owing to an erroneous statement being made, with the appearance of authority, that "all regular physicians would be admitted to the Congress." This is true only in so far as that the sessions of the Congress will be open to the public. We trust the President of the Society has power to remedy this error, as credentials must in every case be presented to enable a delegate to take his seat in the body. The American representation in the Congress is from the State Medical Societies, each society being entitled to the same number of delegates as its State has *representatives* in the Congress of the United States.

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University of Pennsylvania.—Horatio C. Wood, Jr., M.D., has been elected to the chair of Materia Medica and Therapeutics in this school, vice Dr. Joseph Carson, resigned.

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A Remarkable Bill before Congress.—A bill has been presented to Congress for the incorporation of "The National Surgical Institute of the District of Columbia." The object of this audacious bill is to obtain extensive advertising and to advance private interests at the public expense. The Medical Society of the District of Columbia have very properly protested against the passage of the bill, and we cannot for a moment believe that Congress will allow itself to be deluded into enacting it.

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Rumford Medal.—This medal, which is regarded as the highest honour which can be conferred by any society in this country, has been awarded by the American Academy of Science (Boston) to Prof. J. W. Draper, of New York, for his researches on radiant energy. Mr. Charles Francis Adams in presenting this medal eloquently enumerated Dr. Draper's numerous researches in many branches of physical science, which justly entitle him to the distinction conferred on him.

Dr. Draper's literary labours have not been less remarkable and important than his scientific. His histories of the Intellectual Development of Europe, and of the Conflict between Science and Religion, etc., show him to be one of the most extensive investigators, independent thinkers, and profound philosophers of the age.

FOREIGN INTELLIGENCE.

On the Preservation of Ice at the Bedside.—Mr. Sampson Gamgee, Surgeon to the Queen's Hospital, Birmingham, in a short article (*Lancet*, June 10, 1876) calls attention to this subject. His practice for some years has been to cut a piece of flannel about nine inches square, and secure it by ligature round the mouth of an ordinary tumbler, so as to leave a cup-shaped depression of flannel within the tumbler to about half its depth. In the flannel cup so constructed pieces of ice may be preserved many hours, all the longer if a piece of flannel from four to five inches square be used as a loose cover to the ice-cup. Cheap flannel, with comparatively open meshes, is preferable, as the water easily drains through it and the ice is thus kept quite dry. When good flannel with close texture is employed, a small hole must be made in the bottom of the flannel cup, otherwise it holds the water, and facilitates the melting of the ice, which is, nevertheless, preserved much longer than in the naked cup or tumbler. In a room 60° F., Dr. G. made the following experiment with four tumblers, placing in each two ounces of ice broken into pieces of the average size for sucking. In tumbler No. 1 the ice was loose. It had all melted in two hours and fifty-five minutes. In tumbler No. 2 the ice was suspended in the tumbler in a cup made as above described of good Welsh flannel. In five hours and a quarter the flannel cup was more than half filled with water, with some pieces of ice floating in it; in another hour and a quarter (six hours and a half from the commencement of the experiment) the flannel cup was nearly filled with water, and no ice remained. In tumbler No. 3 the ice was suspended in a flannel cup made in the same manner and of the same material as in No. 2, but in No. 3 a hole capable of admitting a quill pen had been made in the bottom of the flannel cup, with the effect of protracting the total liquefaction of the two ounces of ice to a period of eight hours and three-quarters. In tumbler No. 4 two ounces of ice were placed in a flannel cup made, as above described, of cheap, open flannel (10*d.* per yard), which allowed the water to drain through very readily. Ten hours and ten minutes elapsed before all this ice had melted.

A reserve supply outside the bedroom door can be secured by making a flannel cup, on the plan above described, in a jug, and filling it with little lumps of ice; care being taken that there is space enough below the bag to allow the water to collect, and leave the ice dry. This provision will allow ice to be used during the hottest night, without the supply failing, or the patient being disturbed—two very important considerations. The real therapeutic benefit of ice is only produced in some cases by its free use, and its soothing and stilling effect must be aided by the most perfect surrounding quiet.

—

The Sea-side for Hip-joint Disease.—M. Cazin read a paper at the Société de Chirurgie, giving an account of the results obtained in hip-joint disease at the hospital at Berk, near Boulogne. During the years 1869–76 there were admitted 212 cases of this disease, of which number eighty were in a state of suppuration. No surgical operation was performed, the treatment consisting only in expectation, the limb being kept in a state of immobility by means of a silicated bandage or a modification of Bonnet's splint. The results obtained in the eighty cases of suppurating hip-joint disease were as follows: Cured, forty-four; improved, six; incurable, twenty; and fatal, ten. In five of the ten fatal cases albuminuria existed on admission, the others dying either from pulmonary phthisis or from exhaustion produced by the suppuration. M. Cazin believes that hip-joint disease is a more curable affection in the poor than in the rich. During the acute and febrile stage of the disease, the sea-side is unsuitable in these cases.—*Med. Times and Gaz.*, May 20, 1876.

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Antiseptic Property of Borax. — Prof. Dumas (*Union Méd*, May 20) presented to the Académie des Sciences a note in the name of Surgeon-Major Bédois, in proof of the antiseptic property of borax. Two pieces of meat were placed, the one in ordinary water and the other in a solution of borax. While the former was shortly in a state of putrefaction, the other remained quite unchanged, the microscope being unable to discover in the solution either vibriones or infusoria of any kind.—*Med Times and Gaz.*, May 27, 1876.

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Removal of the whole of the Scapula and part of the Clavicle.—It is stated (*Lancet*, May 20) that Mr. MacCormac performed this operation at St. Thomas's Hospital on a woman, for a myxo-chondromatous growth weighing six pounds. The operation occupied twenty-four minutes, and was attended with very slight hemorrhages. The patient has since progressed uninterruptedly well. The wound has been daily treated antiseptically, and the whole surface dressed with salicyzed cotton-wool under the personal supervision of Mr. MacCormac. There has been very little traumatic fever.

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Applications in Urticaria.—Prof. Hardy recommends (*Union Méd.*, May 20) the following lotion to be applied several times a day in order to allay the itching in urticaria: Chloroform ten, and oil of sweet almonds thirty parts. In obstinate cases he prescribes corrosive sublimate one-tenth to one-seventh of a part, alcohol ten parts, and distilled water ninety parts. He gives also internally alkaline medicines, and if these do not prove efficacious he resorts to arsenic.—*Med. Times and Gaz.*, May 27, 1876.

SMITH ON CHILDREN—New Edition—Now Ready.

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This work took a stand as an authority from its first appearance, and every one interested in studying the diseases of which it treats is desirous of knowing what improvements are apparent in the successive editions. The principal additions to which we refer and which will be the distinguishing features of the third edition, are chapters on diphtheria, cerebro-spinal meningitis, and rötheln. The former disease is considered much more in detail than formerly, and a great amount of very practical information is added, and altogether it is one of the most comprehensive and one of the best written chapters of the subject we have thus far read. His description of cerebro-spinal meningitis, founded also for the most part on personal experience, is admirably clear and exhaustive.—*N. Y. Med. Record*, Feb. 19, 1876.

In presenting this deservedly popular treatise for the third time to the profession, Dr. Smith has given it a careful preparation, which will make it of decided superiority to either of the former editions. The position of the author, as physician and consultant to several large children's hospitals in New York city, has furnished him with constant occasions to put his treatment to the test, and his work has at once that practical and thoughtful tone which is a marked characteristic of the best productions of the American medical press.—*Med. and Surg. Reporter*, Feb. 1876.

The former editions of this book have given it the highest rank among works of its class, and the present edition will confirm and add to its reputation. Having been brought up to the present mark in the rapid advance of medical science, it is the best work in our language, on its range of topics, for the American practitioner.—*Pacific Med. and Surg. Journ.*, Feb. 1876.

Dr. Smith's Diseases of Children is certainly the most valuable work on the subjects treated that the practitioner can provide himself with. It is fully abreast with every advance; it should be in the hands of practitioners generally, while, because of the conciseness and clearness of style of the writing of the author, every professor of diseases of children, if he has not already done so, should adopt this as his text-book.—*Va. Med. Monthly*, Feb. 1876.

We can cordially recommend the work to students and practitioners as one of the very best with which we are acquainted.—*Cincin. Med. News*, Feb. 1876.

This is a new edition of a popular work, and it will only be necessary to direct attention to the changes that have been made in it. In the first place, it has been considerably enlarged. It is a good practical treatise, and the author's views are based upon the results of considerable personal observation and practical experience.—*London Lancet*, April 15, '76.

There is no doubt, indeed, that it is one of the best books on diseases of children in the English language. This praise may seem too general, but the volume is already so well known that we need only call attention to a few of the many improvements that add to the value of the latest edition. We find that several chapters have been written, and others considerably enlarged and amended, in order to bring the volume up to the latest date. It is less than four years since the author gave us his second edition, but even that short time is long enough, to one having special facilities for clinical studies, to add largely to experience. This ripe experience is abundantly evident in the enlarged and enriched volume before us, which we heartily commend to the professional reader.—*N. Y. Med. Journ.*, May, 1876.

The fact that this work has reached a third edition within a few years, is sufficient proof of its acceptability to the profession, and a careful examination of it will convince any one that it deserves its popularity. It is clear, practical, and sensible.—*The Journal of Nervous and Mental Disease*, April, 1876.

This is probably the best work on the subject by an American physician, and for the use of American practitioners. The work deserves the success it has achieved.—*New Orleans Med. and Surg. Journ*, May, 1876.

The book is exceedingly well got up, it is enriched with engravings, which add much to its usefulness, and fairly represents, both from a clinical and pathological standpoint, the present status of our knowledge of children's diseases. It will be found an exceedingly good book both for study and reference. We are pleased to be able to recommend the book as the work of a painstaking and thoughtful physician. —*Lond. Med. Times and Gazette*, May 27, 1876.

A comparison of this volume with the previous edition shows that a smaller type has been used, and the size of the page enlarged. Hence, an equal number of pages contains more matter. A considerable portion of the work has been rewritten, to bring it up to the state of our present knowledge. Several diseases omitted in previous editions are treated at length in this. The author's unusual facilities for clinical study of this class of practice enable him to entertain more precise and positive views than would otherwise be possible. Perhaps the greatest value of the book rests upon the realism thus imparted to it. As a rule, we think that to the American student, no other single work on the diseases of children has a greater value.—*Detroit Rev. of Med. and Pharm.*, June 1876.

The views of the author are original, and the whole treatise of an eminently practical character, and, without exception, the most valuable work in the English language on the subjects embraced in its contents. The style of the work is lucid, concise, and logical, and its pages unencumbered by useless matter, a no small recommendation in these times of multiplicity of books and hard work. Whilst to the student of medicine and young practitioner we deem it indispensable, we think no one, however extended his experience in the treatment of diseases of children, can consult its pages without being greatly benefited. The mechanical execution of the work, the clearness and beauty of the typography, the appropriateness of the illustrations, etc., are worthy of all commendation.—*Ohio Medical Recorder*, June, 1876.

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CLINICS.

CLINICAL LECTURES.

Abstract of a Clinical Lecture on a Case of Destruction of the Rectum, followed by Cicatricial Occlusion of the Bowel above, and completely relieved by Colotomy. By FURNEAUX JORDAN, F.R.C.S , Prof. Surg. in Queen's College, Birmingham.

The woman you have just seen, whose age is about thirty-eight, was placed under my care by my colleague Professor John Clay. I will give you a brief history of her case. Several months ago, she had a confinement so difficult and so prolonged, that it was followed by sloughing of the entire rectum. The pressure of the child's head had been directed persistently backwards in such a manner as to destroy the vitality of all the parts between it and the cavity of the sacrum. I put the matter somewhat compendiously, because, having no obstetric experience, I do not pretend to give you any obstetric details. The vesico-vaginal septum escaped serious injury, so that, although there was incontinence of urine for a time, she subsequently regained control over the bladder. I need scarcely tell you that, in consequence of the contracted state of the sphincter ani, the feces came away through the larger and more patulous outlet of the vagina. The frequent and involuntary escape of feces and flatus

Published monthly by HENRY C. LEA, Nos. 706 & 708 Sansom Street, Philadelphia, *for One Dollar a year; also furnished* GRATUITOUSLY *to all subscribers of the "American Journal of the Medical Sciences," who remit the Annual Subscription, Five Dollars, in advance, in which case both periodicals are sent by mail free of postage.*

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made her state sufficiently distressing; what it was before she became able to hold her water I will leave you to imagine. Greater troubles, however, were to follow. Symptoms of chronic intestinal obstruction arose. These gradually increased, and her condition becoming one of great gravity, Mr. Clay was consulted; and when I saw her, at his suggestion, there had been complete obstruction for fourteen days. On examination, the finger entered a cavity formed by the anterior wall of the vagina in front, and by the sacrum behind. At the upper and back part of the space, was a dense, irregular, cicatricial mass, in front of which the uterus was situated.

The poor woman was in a state of great exhaustion, and there was clearly no time to lose. Two modes of operative relief presented themselves for consideration. Should we try to pierce the cicatricial mass at the brim of the pelvis, seek for the canal of the bowel, and attempt to establish a permanent opening in it? or should we open the colon in the left loin? It would, we believed, be difficult to reach the bowel, difficult to open it, and difficult to keep the opening permanent. But there was something graver than difficulty before us; there was real danger—the danger of opening the peritoneal cavity behind the uterus. Taking into consideration all the bearings of the case, we believed that they were all in favour of colotomy. I at once performed the operation. Improvement was quickly seen, and restoration to perfect health followed.

Touching the operation of colotomy, I have a word to say. Not long ago there was a discussion conducted by very able surgeons on this point: should the parts be divided in such a manner as to leave a conical wound, the bowel being at the bottom—a wound, it was said, more favourable for recovery; or should the muscles be divided to the full extent of the superficial incision—a step which, it was said, would facilitate the finding of the bowel. Gentlemen, in this, as in so many other controversies, there seems to me a middle way. Sometimes the muscles are so thin and the wound so shallow, that little deep dissection is needed; sometimes, on the other hand, the muscles are so massive and the wound so deep, that free division of muscular fibre is, in my opinion at least, desirable. I have opened the left colon frequently, and will tell you one item of my experience. In thin and emaciated persons, I have found the bowel within one inch of the surface; but, on the other hand, in stout persons, I have found the bowel at a depth of four inches. I shall not forget the case of a very stout man. When the end of my fingers touched the blue colon, the ends of my metacarpal bones were below the level of the skin. [Nearly two years have passed away since the above lecture was given. The woman remains in excellent health, and the opening in the bowel is easily managed.]—*Brit. Med. Journ.*, June 10, 1876.

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Remarks on Glaucoma as a Neurosis; with an Illustrative Case. By JONATHAN HUTCHINSON, F.R.C.S., Senior Surgeon to the London Hospital.

I have often and long ago indulged in the expression of a conjectural opinion that glaucoma is a neurosis, and that the immediate cause of the tension of the eyeball is tonic contraction of the sclerotic, and not any increase in the fluid contents of the organ. I have also sometimes remarked that its closest pathological analogue is the curious contraction of the palmar fascia, not unfrequently met with in middle-aged and elderly persons. Such opinions may to some seem rather fanciful; but, in spite of that defect, I feel convinced that they are worth thinking about. The contraction of the palmar fascia to which I refer, is usually seen in front of the ring finger, and often involves the little finger also. It gradually and surely puckers up the skin and deeper parts below the finger cleft, and pulls the first phalanx down towards the palm. The skin and fascia become adherent together, but there is never any pain or inflammation. It occurs as frequently to those who do not do any work as to those who use tools, and probably has no connection with local irritation. Excepting that it sometimes happens to gouty persons, we can offer no conjecture as to any state of health which predisposes to it. It never occurs to young persons, is rare before middle age, and most frequent in early senile periods. It usually begins in one hand, and, after a while, attacks the other also. It is irremediable. In most of these features it much resembles chronic glaucoma. I admit that we have no rapid cases which might correspond with acute glaucoma; but then probably the sclerotic coat of the eye contains elements far more closely resembling non-striated muscular fibres than does the fascia of the palm. To this latter fact I would also refer, in explanation of the circumstance, that, whilst in the palmar disease there are manifest thickening and adhesion of tissues, none such have as yet been proved in glaucoma. The operative measures, iridectomy, sclerotomy, and the like, are such as would not be unlikely to be useful if the theory suggested were true, while it is somewhat difficult to explain their action under other hypotheses.

Whether we accept or not, as plausible, the sclerotic-contraction theory of glaucoma, we can, I think, feel little hesitation in admitting that both glaucoma and contraction of the palmar fascia are neurotic lesions. They are neither of them merely local, and neither has probably much to do with the blood. It is rare, in the highest degree, to find either of them synchronously symmetrical, whilst both are usually bilateral in the end. This fact fits well with what we know of some other ailments, the result of nerve-degeneration. Both occur at periods of life when such degenerations are not uncommon.

When I began this paper, I scarcely intended to say so much on this supposed parallel; my object was rather to narrate a case in which glaucoma, with unusual features, and contraction of the palmar fascia are present together, and in which there is evidence of progressive disorder of the nerve-centres. The case is one of considerable interest in many directions, though, I must admit, of much intricacy. Certain lessons may, however, I think, by those who can give attention to detail, be learned with tolerable clearness from it.

Mr. K. is an intelligent farmer, now aged 48, of a family in which nervous disorder has repeatedly shown itself. One brother has been several years in an asylum, having become insane (a harmless quiet form) after some business anxieties. Another brother was liable to attacks of inordinate sopor, and used to sleep for several days and nights consecutively. He had several attacks of this liability, on each occasion after a very severe cold, and the last ended in death. His case has formed the subject of an able narrative by Dr. Ward Cousins of Portsmouth, in the *Lancet* some years ago. My patient considers that he was, when at school, a delicate lad; but, in later life, his state of nervous health was such as to enable him to be quite successful in his business. He never married; was always continent, and suffered from boyhood onwards from nocturnal emissions. He has lived a very steady life in all respects, having never either drank or smoked to the least excess. It may be noted, in passing, that three other brothers have remained unmarried, two of them being those whose cases are referred to above. The third celibate is a florid healthy man. Mr. K. himself is pale, and rather thin; but there is but little in his manner which would lead to a suspicion of sexual debility. He utterly denies masturbation. The ailments from which he has suffered may be mentioned in the following order, which is nearly that of their development.

Dyspepsia, with constipation and flatulence;

Difficulty in sleeping;

Lassitude and want of strength;

Slow development of cataract in the right eye, followed after several years by glaucoma;

Absolute blindness, and great increase of tension, with an *abnormal deep anterior chamber, and an iris which still acts vigorously when the sound eye is stimulated;*

Distressing liability to giddiness;

Contraction of the palmar fascia in the right hand;

Pain in the occiput and neck;

Feeling of stiffness and numbness in the right arm and right side of the chest;

Inability to attend to his business or exert his mind, although his mental faculties remain perfect.

Mr. K. has been under my observation, with long intervals, for the last twelve years. At first, he was out of tone, dyspeptic, and "hypochondriacal;" but, by degrees, more special conditions were developed. In July of 1874, he came to me after an interval of several years, and I found that cataract had formed in the right eye. Of this I had known nothing before. He thought the eye had been ailing for five or six years. During the last three months he had experienced much pain in the eye, the severity varying much at different times. The tension was slightly increased, the cornea looked a little dull, and the iris wanted lustre. Although the pupil acted fairly to light, it dilated but very little when atropine was used. The anterior chamber was deep. The iris was thought to be a little tremulous. As the eye was blind and the failure had been slow, I did not advise an operation.

In January of 1875, I saw him again. The eye was now quite blind, but without pain. He considered that it had been blind for several years, and before the attacks of glaucomatous pain described in the previous note. The cataract was of a dirty brown colour. The increase in tension was very decided. He complained that his head symptoms had greatly increased of late. He had become more and more sleepless, and asserted that he never "could get more than half sleep." It appeared that his want of good rest was probably a main cause of his debility. He was frequently giddy, especially soon after rising.

I now sent him to Margate; but, whilst there, he said he felt far worse, and was so languid that he could only just get out. About this time, he insisted on leaving his farm, and going to live with a brother, alleging that he felt so weak and giddy that he was unable to attend to anything. Often in the fields he would feel as if he must fall, and be glad to lean against a gate. His dyspepsia and flatulence had never been much benefited by attention to diet. He had left off first one thing and then another, and then resumed them again, and never found that it made much difference.

In May, 1876, he again called on me. He did not look any worse, but made still greater complaint of his inability to attend to business. I now examined his eye carefully, and found its condition very peculiar. The cornea, although not actually steamy, was not bright, but looked dull, like that of a fish. Possibly, owing to the state of the cornea, the iris looked muddy. The pupil was of medium size, perhaps rather small; it was motionless when the eye was exposed to light, but acted very fairly when the other eye was exposed. The anterior chamber was much deeper than natural, the ciliary attachment of the iris being retracted. The emergent veins were rather larger, and more numerous and natural. The tension of the globe was much increased. He could barely tell light from dark. The eyeball was still at times rather painful. He had suffered for nine months from pain and stiffness in the right side of his neck, and from stiffness and numbness in the right arm and hand, and right side of chest. He could use the hand for anything, but said that he often had "to rub it to take the numbness away." The palmar fascia at the base of the ring finger was contracted and hard, and the finger was a little drawn down. In the other hand similar conditions existed, but in much slighter degree. The left eye enjoyed perfect vision, and appeared normal in all respects.

Mr. K. has never suffered much from cold feet, a symptom frequently noticed when the nervous system fails in consequence of sexual abuses. He has been liable to colds in the head, to an extreme degree, often being for months together scarcely ever without. Although very frequently giddy, and unable to exert his mind, he can walk fairly, and usually does six miles a day. His appetite is good. His pulse is deliberate, sixty in the minute.

There can, I think, be little doubt that some central disease of his nervous system in the left side is present, by which the various right-sided symptoms are to be explained. The retraction of iris and activity of pupil, with such a considerable degree of tension, are, I think, very exceptional.—*British Medical Journal*, June 17, 1876.

HOSPITAL NOTES AND GLEANINGS.

Incomplete Paraplegia from a Fall on the Feet.—Amongst the more interesting of the cases lately in Mr. Hutchinson's ward, was the following instance of partial paraplegia following a peculiar injury to the spine. The patient, a middle-aged man, fell from a considerable height straight down, alighting on his heels on a hard road. He was not aware that his back was struck in any way. The consequence was, however, inability to stand and very imperfect power of motion of the lower extremities whilst in bed. He had also for several weeks incontinence of urine and troublesome constipation. After a long confinement to bed, he became able to walk feebly, and regained control over his sphincters. Eighteen months after the accident, he could just manage to walk about in a feeble tottering manner. The muscles of his legs were much wasted; and, although he could bend the knees vigorously, he could scarcely move the ankles. The gluteus maximus on the right side was quite atrophied. No material defect in sensation could be demonstrated. The man could in an usual way hold his urine, but he could not resist the desire to let it escape for more than a few minutes. There was a decided projection of the spinous process of the last dorsal vertebra.

In commenting on this case, Mr. Hutchinson remarked that he felt little doubt that there had been a fracture of the vertebræ, with definite injury to the contents of the spinal canal. He did not believe that mere concussion of the spine could produce definite local symptoms of the kind here displayed. It was, indeed, not easy to conceive of mere concussion of the spine causing anything more than mere functional disturbance. In this instance, the severity of the symptoms at first, and their gradual disappearance afterwards, coincided with what is often observed in cases of proved displacement; yet the accident had not been one likely to cause a fracture of the spine. He remarked further that, in attempting to decide the question as to whether the spinal cord has been really crushed by a displacement of the bones constituting its case, or concussion only has occurred, it is necessary to remember that contusions of the cord may vary very much in degree. In some instances, the cord may be almost crushed through, or, at any rate, completely softened, by the temporary pressure to which it has been subjected; whilst in others it may have received only the slightest and most transient squeeze. The presence or absence of paralysis of the bladder is always a very valuable guide. If the bladder be really paralyzed, both as regards its detrusor and sphincter, the suspicion becomes very strong, even in the absence of other symptoms, that something more than mere concussion has occurred. In reference to this point, he instanced the case of an old gentleman whom he had seen in private a few days before. In this case, he had been consulted on account of total paralysis of the bladder, which had followed a severe fall head foremost into an area ten days ago. In the absence of paralysis of the limbs, it had been supposed that the condition of the bladder was due to the severe contusion of the loins which had occurred. In support, however, of the opinion that the patient had sustained in reality a dislocation in the cervical region, with a slight temporary crush of the cord, were some important items of evidence. The patient stated that, when he first became conscious after the fall, all his limbs were numb and tingling; and that, although he had gradually regained the ability to use his hands, yet that they were still very weak, and that he often experienced the sensation of "pins and needles." Although no irregularity could be detected in the cervical region, there was a place where it was very tender on pressure. Mr. Hutchinson added that his experience of *post-mortem* examinations in which concussion of the spine had been diagnosed had always been the discovery of fracture and displacement. Very usually, he remarked, the displacement is remedied immediately after the accident.—*British Med. Journ.*, May 6, 1876.

Multiple Cysticerci Cellulosæ.—A very curious case of cysticercus cellulosæ in a man was lately to be seen in M. Broca's ward in the Hopital des Cliniques. The patient, who is a coachman by profession, had his body literally covered with a considerable number of the above parasites, which were to be seen principally in the great pectoral muscles, the muscles of the arm, in the cellular tissue; and it is probable they existed also in the brain, as the patient was affected with cerebral symptoms. About four years ago, the patient had passed several joints of a worm from his bowels, and even during his stay in the hospital he had passed a few, which, unfortunately, were not examined. M. Broca was, however, of opinion that the joints were parts of the tænia solium, it being the only worm with which the cysticercus cellulosæ is connected. The patient, being otherwise in good health, never sought medical advice until one day, whilst on horseback, he felt giddy and became insensible, in which state he remained for some time. He has had several attacks since, but not so severe in their character. About seven months before his admission to hospital, the patient observed, for the first time, a small lump on the chest, and, shortly afterwards, he noticed several others. These little tumours were situated deep in the muscles, and were of an oval shape, smooth, and painless. In order to confirm his diagnosis, M. Broca removed one of these little tumours, and, on examining its contents, found a cysticercus. The only treatment adopted in the case consisted simply in passing a small cataract-knife through each tumour, and combating symptoms as they presented themselves. The effect of this operation was the rapid atrophy of the tumours, and relief of the cerebral symptoms soon followed; there still remained, however, slight deafness, and the sight of the left eye was affected. Examination with the opthalmoscope had not discovered the presence of cysticerci in the vitreous humour. M. Broca had pierced upwards of three hundred of these tumours—that is, those situated superficially; and it was obvious that nothing could be done for those situated deeply in the tissues and the brain. The patient had no tumour under the tongue; and, in a clinical lecture on the subject, M. Broca observed that, in the order of frequency, cysticerci in the human subject are found in the muscles and then in the brain. As for the origin of these parasites in man, it is generally attributed to the use of raw or underdone meat, particularly that of pork; but M. Broca believes they may be imbibed from other sources as well, such as uncooked vegetables, and even drinking water.—*British Med. Journ.*, May 20, 1876.

MEDICAL NEWS.

ORIGINAL ARTICLES.

A Hint about the Dry Preparation of Blood Corpuscles. By CHRISTOPHER JOHNSON, M.D., Professor of Surgery, University of Maryland.

These should be spread upon the under side of a cover suitably thin. First attach the cleaned cover to a slide, as a holder, with a minute drop of water. Next place a small drop of fresh blood upon the cover near the edge, and immediately, with the narrow end of a well-ground slide, inclined somewhat, catch the drop, and sweep the slide gently and steadily over the cover. Dry immediately in warm air or by aspiration, and glide the cover free after moistening its edge with a camel's-hair pencil moistened with distilled water.

When thoroughly dry, *immerse the cover in chloroform*, to remove fatty matters, dry and mount upon a circle of Wöller's asphalt-lac or zinc white.

The larger disks of amphibians are best spread out by floating the disks, free from coagulum, over the cover, and drying as above.

All coloured corpuscles may be stained, but the pyrenæmatous red disks give excellent results; the nucleus being very distinctly coloured, with carmine, for example, while the "formed part" is pale, or made blue with anilin. Col. Woodward has had excellent success with perosmic acid.

We would especially recommend the blood disks of frogs, salamanders, menopoma, and amphiuma tridactylum, the red corpuscles of the last-named being remarkable as well for their great beauty as their size. The leucocytes of amphiuma are superb.

Case of Tapeworm successfully treated. By Miles J. Birdsong, M.D., of Carthage, Texas.

Mrs. H., aged 29 years. The mother of five children, the youngest four months old, her general health good with good flesh. Nothing strange about her appearance or appetite. But has been occasionally afflicted, for two years, with pains in her abdomen, which she called colic, brought on from slight exposure to cold or from taking something cold on her stomach. On June the 6th, my attention was called to the case by her husband presenting a portion of the worm for inspection. Prescribed calomel and santonin, xv grs. each, to be taken at bedtime, to be followed with castor oil and sp. turpentine, next morning, discharged ten feet of worm.

June 9. Prescribed oleum terebinth. fl℥ij, to be taken at bedtime with castor oil, next morning discharged ten or twelve feet more worm.

18*th*. Prescribed decoction pomegranate root, prepared after the formula in U. S. Dispensatory, one ounce to be taken every hour for eight consecutive hours, after fasting twenty-four hours. The remainder of the worm was discharged during the day while taking the decoction. The whole length of worm discharged was forty-five feet, according to the best estimate we could make.

Case of Rupture of the Uterus. By W. H. White, M.D., of Steen's Creek, Rankin County, Mississippi, May 24, 1876.

The rarity of "rupture of the uterus" has induced me to communicate the following: May 19th I was called in haste to see Margaret McF., an unmarried primipara, white, æt. 17 years. Apprehending a grave case, I went prepared to effect instrumental delivery. On my arrival at 10 o'clock P. M., I was informed that labour began at 6 A. M. of that day, and that at 12 M. the second stage was ushered in by pains of the most intense and powerful character. The head soon presented at the inferior strait, and all went well, when suddenly she was seized with convulsions, during which she bounded from her bed, and was with difficulty restrained by the aid summoned. After two or three convulsions, which continued to recur at intervals of fifteen or twenty minutes, on examination it was noticed by the midwife that the head had receded, and that subsequent pains were of no avail. It was also detected that the child was too "high up," and that it had ceased to move.

The woman continued partially rational between convulsions until near 4 o'clock P. M., when she became totally insensible, scarcely moving except during the convulsions, breathing stertorously, and emiting frothy mucus, intermingled with blood, from her mouth. This was the condition presented at my arrival at 10 P. M. as stated. I soon applied the forceps, and experienced no difficulty in the delivery, save that there was no *vis-à-tergo* to aid in expulsion. It proved to be a healthy, well-developed male—still-born—of little more than ordinary weight. Introducing my hand to extract the placenta, I passed it readily through the rent, which occurred at the upper, anterior aspect of the fundus. The uterus contracted well, and there was no hemorrhage except what had occurred from the rent into the peritoneal cavity, and I think her symptoms warrant me in saying that this was not sufficient to add any gravity to the case. The convulsions continued, though at lengthening intervals, until my departure at 5 o'clock A. M., May 20th, and the woman succumbed 24 hours afterward.

An autopsy was not granted, and consequently the cause of the rupture is rendered somewhat more obscure. I am inclined to attribute the rupture in this case to the great violence of the uterine contractions, coming on rapidly, as the fœtus was hardly above average size, and the woman's pelvis was abundantly capacious, though defective structure of the uterus might have been revealed as a factor in the causation, had we been able to obtain a post-mortem examination.

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Suppurative Pleuritis following Simple Pneumonitis. By F. S. THOMAS, M.D., of Maudonia, Iowa.

On the 1st day of January last I was called to see Miss Emma C., æt. 15, whom I found suffering from acute pneumonitis of the lower two lobes of left lung. No perceptible pleural complication during the first stage; more evidence (yet slight) during second stage. Third stage progressed nicely; patient was sitting up on the ninth day, walked across the room on the tenth, and continued improving until about the 15th day.

The treatment was simple: by opiates, stimulants, tonics, etc., with good nourishment. Case discharged January 12th.

Was recalled January 15th. Found my patient suffering (as I supposed) from an acute attack of pleuritis (left side). Pain very severe. Prescribed morph. sulph. January 16th, patient better, sitting up in bed. Prescribed syr. squills, potass. iod., and a mild saline cathartic. January 18th, absorption progressing, chest diminishing. Prescribed quinia sulph., animal broths, etc., with local application of tinc. iodine, also same by inhalation. January 20th, patient much better, sitting up; size of chest nearly natural in appearance; some dulness on percussion. Case again discharged. Was absent from county, and did not see her again until February 3d. During this time she had days in which she was nearly free from pain, others she suffered considerable, and had more or less fever.

February 3d, found her chest distended, pulse 106 and feeble, tongue heavily coated, headache, very nervous, and despondent [first appearance of catamenia since December]. Prescribed three grain doses of quinia sulph. every three hours. Began to fear that the accumulation was pus instead of a sero-fibrinous liquid. Again resorted to tr. iodine as before.

February 5th, condition same. Prescribed elixir cal. bark and iron; requested council.

February 7th, accompanied by Dr. Henry Osborn, of Council Bluffs, Iowa, we visited our patient, and decided to perform thoracentesis, which we did, and one half gallon of pus was discharged, much to the relief of our patient, and satisfaction of all concerned. The discharge continued until the 1st of June, healing without trouble. The treatment during this period was with elix. cal. bark, ferri et strych., about two pints being used. Plenty of out-door exercise. Our patient lived on a beautiful farm in a healthy locality, rolling prairie, and free from miasmatic influences. Her father, being a wealthy farmer, gave her every advantage to regain her health, which she is now enjoying, and suffers nothing from her long and tedious illness.

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Case of Triplets. By S. C. GRISWOLD, M.D., of New Haven, Mo.

Mrs. A. C. W., native of this State, æt. 31, small stature, general good health, never weighed over ninety pounds, has always resided on a farm, been married four years, and was delivered of first child, a boy, about two years ago; pelvis is large in proportion to her size. She has suffered for some months with occasional difficulty of breathing and œdema of lower extremities, with very great abdominal enlargement. Dr. J. S. Hiatt was consulted and informed that her confinement was expected about the eighth of August.

On the morning of August 12th, 1875, labour commencing, Dr. Hiatt was called and arrived at four o'clock A. M. On examination a fœtus was found presenting with first position of vertex. She was delivered of a boy at five A. M., with comparatively small amount of pain. After delivery a second fœtus was found descending, and, after separation of the funis of the first one, a more thorough examination discovered a transverse position of the fœtus. I was called at this juncture, and, arriving a few minutes before six o'clock, on examination found the fœtus in the first position of the right shoulder presentation with the arm depending, hand externally, and the cord, which did not pulsate. Immediately gave chloral in full dose (the pains being strong and patient unexhausted), and repeated chloral in fifteen minutes; then, having patient in position for version, I introduced the hand and brought down the feet, and the child was delivered, still-born, the funis being also depending with the arm, and not pulsating prior to the introduction of the hand. This second boy was delivered about 6.30 A. M. with the membranes. After severing the cord of the dead boy, an examination revealed a third fœtus presenting with the feet, the membranes entire. I ruptured the membranes and delivered a third boy, living, at about seven o'clock A. M. The placenta was detached and thrown into the vagina by a couple of pains and delivered entire with the three cords attached at different parts of its surface without any division or lines of demarcation, except the attachment of the membranes to its surface; these exhibited complete sacs, one containing the other two. The cord attached to the first-born boy was larger than either of the others, and attached near the centre and thicker part of the organ, and had no separate sac from general envelope, while the others were attached about equidistant on each side, to thinner portions and near the edge of the organ, and were each inclosed by a separate and distinct sac. The cord of the second child was somewhat larger than that of the third, and longer than either of the others. The placentæ after being washed, with the cords and membranes attached, weighed five pounds. The children weighed respectively, the first six and one-fourth pounds, the second six pounds, and the third five and one-fourth pounds.

DOMESTIC INTELLIGENCE.

International Medical Congress. Philadelphia, September 4–9, 1876.—The International Medical Congress will be formally opened at noon on Monday the fourth day of September.

The sessions of the Congress and of its Sections will be held in the University of Pennsylvania, Locust and Thirty-fourth Streets.

The General Meetings will be held daily, from 10 to 1 o'clock. The Sections will meet at 2 o'clock.

Luncheon for members of the Congress will be served daily in the University building from 1 to 2 o'clock.

On Wednesday evening, September 6th, Dr. J. J. Woodward, U. S. A., will address the Congress on the Scientific Work of the Surgeon-General's Bureau.

The Public Dinner of the Congress will be given on Thursday evening, September 7th, at 7 o'clock.

The Registration book will be open daily from Thursday, August 31st, to Saturday, September 2, inclusive, from 12 to 3 P. M., in the Hall of the College of Physicians, N. E. corner of Thirteenth and Locust Streets, and at the University of Pennsylvania on Monday, September 4th, from 9 to 12 M., and daily thereafter from 9 to 10 A. M. Credentials must in every case be presented.

Letters addressed to the members of the Congress, to the care of the College of Physicians, N. E. corner Locust and Thirteenth Streets, Philadelphia, during the week of meeting will be delivered at the University of Pennsylvania.

The Secretaries of State and Territorial Medical Societies are requested to forward without delay to the Chairman of the Committee on Credentials, I. Minis Hays, M.D., 1607 Locust St., Philadelphia, lists of their duly accredited delegates to the Congress.

Delegates and visitors intending to attend the Congress are earnestly requested individually to notify immediately the same Committee.

This information is desired to facilitate registration, and to ensure proper accommodation for the Congress.

Members intending to participate in the Public (subscription) Dinner of the Congress will please notify the Secretary of the Committee on Entertainment, J. Ewing Mears, M.D., 1429 Walnut St., Philadelphia.

Gentlemen intending to make communications upon scientific subjects, or to participate in any of the debates will please notify the Commission before the fifteenth of August.

Gentlemen who are not delegates, desiring the volume of Transactions of the Congress, can secure it by immediately addressing the Chairman of the Committee on Publication of the International Medical Congress, care of College of Physicians, N. E. cor. Locust and Thirteenth Streets, Philadelphia.

New York State Medical Society.—The seventieth annual meeting of this Society was held in Albany on the 20th of June. The following officers were elected for the ensuing year: President, Dr. E. R. Squibb, of Brooklyn; Vice-President, Dr. J. V. Kendall, of Baldwinsville; Secretary, Dr. Edward R. Hun, of Albany. The next meeting will be held in Albany on the third Monday in June.

Rhode Island State Medical Society.—The sixty-fifth annual meeting was held in Providence on the 14th June. The following officers were elected: President, Dr. Edward M. Snow, of Providence; Vice-Presidents, Drs. Charles H. Fisher, of North Scituate, E. T. Caswell, of Providence; Secretary, Walter E. Anthony, of Providence.

Mississippi State Medical Association.—The ninth annual session was held at Jackson on May 31st; Dr. P. F. Whitehead, President, in the chair. The following officers were elected for the ensuing year: President, Dr. P. J. McCormick; Vice-Presidents, Drs. R. G. Wharton, A. G. Smythe, W. W. Hall, and D. C. McCollum; Secretary, Dr. Wirt Johnston. The Association adjourned to meet in Grenada on the first Wednesday in April, 1877.

New Hampshire Medical Society.—The eighty-sixth annual session was held in Concord, June 20th. The following officers were elected for the ensuing year: President, A. B. Crosby, M.D., of Hanover; Vice-President, L. M. Knight, M.D., of Franklin; Secretary, G. P. Conn, of Concord.

Illinois State Medical Society.—The twenty-sixth annual meeting of this Society was held at Champaign on the 16th of May. The following officers were elected for the ensuing year: President, T. D. Fitch, of Chicago; Vice-President, S. H. Birney, of Urbana; Secretary, N. S. Davis, of Chicago. The next meeting will be held in Chicago.

American Dermatological Association.—At an informal meeting of physicians interested in Dermatology, held in Philadelphia, June 7, 1876, it was

Resolved, To call upon such American physicians as have evinced a special interest in Dermatology to unite in forming an American Dermatological Association;

Resolved, That the meeting for oganization be held in the University of Pennsylvania, Philadelphia, on Wednesday, September 6, 1876, at 6 P. M., or immediately after the close of the meeting of the Section of Dermatology and Syphilology, of the International Medical Congress, on that day. Gentlemen intending to participate in the organization are requested to signify their pleasure to the Secretary, L. D. Bulkley, M.D., 1 East 33d St., New York, at the earliest opportunity.

American Ophthalmological Society.—The twelfth annual meeting of this society will be held on September 11, next, at Chickering Hall, New York, at 9 o'clock A. M.

Centennial Exhibition.—The Franklin Institute of the State of Pennsylvania has opened a reception room in Machinery Hall. The Institute cordially invites all who desire to do so to visit their room, in which will be found files of the Journal of the Institute and other periodicals devoted to the industrial arts. The room is in charge of a committee of thirty members of the Institute, one or more of whom will be in attendance daily, during the exhibition, to receive visitors and give any information they may desire in reference to the exhibition.

The following objects of great historical interest have been placed in the room:—

1st. *Franklin's Electrical Machine.*—This instrument is doubtless the one used by the great philosopher in making his wonderful experiments in the science of electricity. Presented to the Institute by Dr. John R. Coxe.

2d. *Oliver Evans' Steam Locomotive Engine.*—This interesting model is among the earliest known, having been built about 1804.

3d. *Oliver Evans' High Pressure Steam Engine.*—This is the model of an engine built by O. Evans, about 1804, and is described in Galloway's work on the Steam Engine, page 101. London, 1827.

4th. *Working Model of a Steam Engine* built by M. W. Baldwin, and presented by him to the Institute about 1832.

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New Medical Journals.—Three candidates for professional favour have just presented themselves. Of these, two are published in Columbus, Ohio, and one in New York, and all are to appear monthly.

The *Ohio Medical Recorder* is edited by Drs. J. W. Hamilton and J. F. Baldwin, and contains 45 pages of matter. The first number opens with an excellent article on Foreign Bodies in the Air Passages, by Dr. J. W. Hamilton, of Columbus.

The Ohio Medical and Surgical Journal contains 96 pages, largely occupied with original matter.

The Archives of Clinical Surgery is published by Rutledge & Co., of New York, and edited by Dr. Edward J. Bermingham. The first number contains 42 pages, which are entirely devoted to original matter of permanent value and much merit.

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OBITUARY RECORD.—Died in Savannah, Georgia, July 10th, 1876, of phthisis pulmonalis, RICHARD D. ARNOLD, M.D., aged 68. Dr. A. was a gentleman of remarkable talents, a graduate of Princeton College in the arts, and of the University of Pennsylvania in medicine, and an extensive reader both in professional and general literature. He enjoyed a large practice, and was for many years the leading physician of his city and probably of his State. He was very benevolent, freely bestowing his services on the poor, exceedingly popular, and was the recipient of many honours both professional and others. He was professor of the practice of medicine in the Savannah Medical College for fifteen years, President of the Savannah Medical Society, and several times President of the State Medical Society, repeatedly elected mayor of the city, and occupied a seat in the State legislature, first in the lower house and afterwards in the Senate. He was one of the secretaries of the first National Medical Convention, convened in New York city in 1846, and by his experience in legislative proceedings aided the venerable chairman of the convention, Prof. Knight, to hold that body together. Few living members of the association know the extent of the obligations of the profession to the late Professor Knight, of New Haven, who by his suavity, firmness, dignified demeanor and knowledge of parliamentary rules, succeeded in preventing the disgraceful disruption of that convention, and held them together until they had adopted some important resolutions, including a call for a second convention to be held in the city of Philadelphia the following year, to deliberate on measures having a wider scope than were contemplated in the call of the first convention.

Dr. A. was also one of the secretaries of the second convention, and was an active member of the American Medical Association in its earliest years, and a constant attendant at its meetings; in 1851–'52 he was one of the vice-presidents. He was one of the founders of the Georgia Historical Society, and last winter, on the occasion of the dedication of their new hall, delivered a most interesting discourse, giving the history of the Society. Dr. A. was honoured with other offices, which the limits to this notice will not allow us to enumerate. The inhabitants of Savannah duly appreciate the loss they have sustained in the death of Dr. A., as shown by the unusual honours paid on the occasion of his obsequies.

—— suddenly, at Albany, N. Y., June 8th, 1876, of Bright's disease of the kidneys and aneurism of the arch of the aorta, Dr. J. VAN PELT QUACKENBUSH, aged 57 years. Dr. Quackenbush was Professor of Obstetrics in the Albany Medical College, Attending Physician to the Albany City and St. Peter's Hospitals, and held a high rank among his medical brethren.

—— in Wilmington, Del., of apoplexy, Dr. R. R. PORTER, aged 65. He was one of the most prominent and highly esteemed physicians of Wilmington.

FOREIGN INTELLIGENCE.

Treatment of Polyuria.—M. Hayem mentioned at a meeting of the Paris Biological Society, March 18th, 1876, the case of a man aged forty-eight, who had enjoyed good health up to 1867, when he suffered from a nervous attack, loss of consciousness, and paralysis of the right arm. In 1874 the sight became impaired. The patient remained in good health up to February, 1875, when he became affected with polyuria, polyphagia, and polydipsia, soon connected with nocturnal incontinence of urine. He was ordered issues to the lumbar region, and iodide of starch. When the patient was first seen by M. Hayem, the face was puffed and the lower limbs œdematous. The urine did not contain any albumen, but a certain amount of sugar. He voided in the twenty-four hours four quarts and a half of urine, half an ounce of urea per quart—viz., about two ounces altogether. After a treatment of twenty-eight days, the patient taking about one grain of opium per diem, the quantity of urine diminished to about three pints per day, and the urea to less than half an ounce per quart—viz., seven drachms in the twenty-four hours. The general health was much improved. It is supposed that the opium acted as an alterative of the nervous system. In similar cases Trousseau and Bouchard succeeded with valerian.—*Lancet*, June 17, 1876.

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Diphtheria treated with Sulphate of Iron.—Sabata (*Annali di Chimica Applicata alla Médicina*, Oct. 1875) uses a gargle of 5 grammes (77⅙ grains) of sulphate of iron in 100 grammes (3½ ozs. nearly) of distilled water, to which are added 25 drops of sulphuric acid. At the same time he touches the diphtheritic patches with a somewhat stronger solution (5 grammes of sulphate of iron, 70–80 grammes of water, and 25 drops of sulphuric acid). In addition to these, he orders internally hyposulphite of soda and tannate of quinine. Under this treatment, his statistics show, in the course of a severe epidemic, a death-rate of 12.5 per cent.—*Dublin Med. Journ.*, June, 1876.

Diphtheria and Croup.—These diseases have lately been prevailing to an unusual extent in Paris. M. Besnier, in his report for the first quarter of the present year (*L'Union Médicale*, March, 1876), states that the increase in the number and gravity of the cases of diphtheria and croup has continued progressively for some years past, and this quarter they have been characterized by such malignity that almost all the operations performed for croup have terminated fatally. During the quarter there have been admitted 148 cases of croup, and of these 118 or 79.73 have died—the mean mortality of the same quarter during the preceding six years having been 76.54. In M. Archambault's wards at the Hôpital des Enfants, of 19 cases 18 were operated upon, and only 1 recovered. In all these cases there was also *angine couenneuse*, and in all except one albuminuria. Several of the children resisted death for several days, and one of them died only on the seventeenth. In the same hospital M. Labric had 15 cases of croup, 1 only recovering without operation. Of 14 operated upon, 2 recovered and 12 died. Of 7 cases of diphtheria, 4 died and 3 recovered. In the ward for chronic cases, M. Simon had 6 cases of diphtheria, half recovering and half dying of "inoperable" croup. In private practice he met with many cases of diphtheria, in the best parts of Paris, occurring in children between four and twelve. At the St. Eugénie, M. Bergeron treated 31 cases of pharyngitis (usually diphtheritic pharyngo-laryngitis), and of these 31 patients 5 were discharged cured. If diphtheria and croup are studied separately, it will be found that the former is by far the more fatal. Thus, of 10 patients in whom the isthmus and back of the pharynx were alone invaded by false membranes, 9 proved fatal; but of 21 cases of croup, all operated upon, 4 recovered. With the exception of two of these, all the others had pharyngeal diphtheria; and it is certain that some of those seized with the grave form of the disease—characterized by pallor and puffiness of the face, submaxillary doughiness around the enlarged glands, and nasal discharge—succumbed rather to specific poisoning than to thoracic complications. None of those who recovered had these signs of septic diphtheria; but, with the exception of one, all had to struggle with serious complications. M. Cadet de Gassicourt, also of the St. Eugénie, met with only 1 recovery in 13 operations for croup. He attributes this mortality to the unfavourable conditions under which these patients are admitted, some being in a state of asphyxia, and others the subjects of malignant diphtheria; and the bulk suffering from rickets, or scrofula, and all the attributes of "physiological wretchedness." This great fatality of diphtheritic and croupal affections has, it seems, however, characterized civil practice also where no such conditions prevailed.

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Aspiration in a Case of Femoral Hernia. Dr. Thiriar related to the Brussels Medical Society the case of a woman, fifty years of age, the subject of a femoral hernia, symptoms of strangulation having persisted for four days, and repeated trials of the taxis having failed. Dieulafoy's needle No. 3 was plunged into the hard and sensitive tumour, which was about the size of an egg, and some gas and about a spoonful of yellow liquid of a stercoral odour were withdrawn. The tumour now readily yielded, and was easily returned. All the symptoms of strangulation disappeared, and a purgative was at once administered. Next day the patient had two good stools. No bad symptom followed, and the woman was at once cured. —*Med. Times and Gaz.*, June 17, 1876, from *Journ. de Méd. de Bruxelles*, Feb. 7.

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Treatment of Superficial Varices.—Cazin (*La France Méd.*, Dec. 20, 1875), referring to the treatment of these cases, and the avoidance of phlebitis or pyæmia, recommends the following proceeding: An incision, three centimetres long, is made parallel to the vein, and at a distance of one centimetre from it. At the two extremities of this incision two others are made transversely towards the vein, and reaching to it. This flap is dissected up, and the vein is isolated by a blunt instrument. The flap is next passed beneath the vein and replaced in its original position and fastened, the vein remaining thoroughly isolated without any ligature having been used.—*Dublin Med. Journ.*, June, 1876.

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Torsion and Ligature.—At a clinical lecture at the Lariboisière Hospital, M. Tillaux pointed out the advantages of torsion over the ligature of arteries, and all the other means employed for arresting hemorrhage after the great operations. M. Tillaux stated that up till now torsion had been applied by other surgeons to only small arteries, but he has also applied it to the larger arteries, and after having practised this method for the last five years, he has come to the following conclusions: 1. Torsion is applicable to all arteries, and particularly to the larger ones. 2. A single pair of forceps is sufficient, and not two pairs, as employed in England and elsewhere. 3. The artery should be seized obliquely, and not longitudinally, and in such a manner that the three coats in their entire breadth should be included in the grip. 4. The torsion or twisting of the arteries should then be practised until the portion seized becomes detached. 5. It is unnecessary to adopt measures to limit the extent of the torsion, as practised by Amussat and the English surgeons, as the operation limits itself either to the part seized, or one or two *centimetres* above it. 6. Torsion is applicable to atheromatous or inflamed arteries, as well as to arteries in a healthy condition. 7. Torsion favours union by the first intention, owing to the absence of a foreign body, as in the case of ligatures. 8. Like the ligature, torsion prevents primary hemorrhage. 9. Torsion acts more effectually than the ordinary ligature in preventing secondary hemorrhage. M. Tillaux asserts that ever since he began to employ torsion, in 1871, he has never had a single case of primary or secondary hemorrhage, and yet he has practised it in about a hundred cases of capital operations.—*British Med. Journ.*, May 20, 1876.

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Chronic Poisoning.—The following, which is communicated to us by Dr. G. O. Rees, F.R.S., Consulting Physician to Guy's Hospital, is important. The facts ought to be known to the public as well as to the profession. Dr. Rees writes to us: "I have lately detected a source of chronic poisoning with which, so far as I know, the profession and the public are entirely unacquainted. A lady, residing in a healthy locality and surrounded by all the comforts of life, complained constantly of dyspepsia, accompanied with more nervous depression than usually attends the malady in persons of her age. I inquired into the question of poisoning; and, having ascertained that the walls of her rooms were not covered with arsenical paper, I set aside the idea that arsenic was the cause of her troubles. After a time, however, conjunctivitis occurred, with other symptoms strongly suggestive of chronic arsenical poisoning. Further examination now became necessary, and attention was drawn to the calico lining of the chintz bed-curtains. This material was of a delicate green colour, and, on examination, proved to contain a very large quantity of arsenic. This lady's husband used frequently to wake in the morning suffering from nausea, with a feeling of weight and oppression about the chest; and his eyes, too, became inflamed. My friend, Dr. Debus, who examined the calico, told me that the green pigment appeared to him to have been stamped all over the material, and imperfectly secured by a very thin glaze on one surface. He was much surprised at the large quantity of arsenic present. I am informed by the parties who supplied the bed-furniture that this calico is largely distributed, the colour being a favourite one." There is reason to suspect that a great number of persons are suffering from this form of chronic poisoning, and swallowing quantities of medicine for dyspepsia, which can only be cured by removal from the poisonous dust of their bedrooms. Dr. Rees has forwarded to us a piece of the calico. It is highly glazed, of a favourite delicate green tint, such as is much used for lining chintzes; and it is loaded with arsenic.—*British Med. Journ.*, May 20, 1876.

A New Adhesive Plaster.—A mixture of twenty parts of mucilage and one part of glycerine constitutes an excellent shining and supple plaster, far cheaper than the resin and diachylon, and lasting more than a year without deterioration. Three or four layers of the mixture require to be spread over each other on the linen or other stuff, allowing sufficient intervals for the successive layers to dry.—*Med. Times and Gaz.*, June 17, 1876, from *Journ. de Méd. de Bruxelles*, March.

Cholera in India.—Golwood, a village of 200 people, on the Bombay and Baroda Railway, has been the scene of one of the most frightful outbreaks of cholera ever known. Over half of the population died in three days. The disease appeared at noon on the 4th inst., and before daybreak next morning there had been fifty-seven deaths. On the 8th all the survivors fled, but were refused admission by the adjacent villages. The disease displayed extreme virulence, some cases proving fatal in twenty minutes. In these cases the ordinary cholera symptoms were absent, and the body at the first stroke of the disease became livid, convulsed, and shrunken. There is no resident doctor in the village, and medical help was some time in arriving. Gross neglect of sanitary measures is the apparent cause, as it is stated that the people were living in inconceivable filth. Cholera appears to be unusually prevalent in India this year, outbreaks being reported from various quarters, none, however, approaching that of Golwood in violence.—*Med. Times and Gaz.*, June 24, 1876.

New Sydenham Society.—The Council has decided to give up the issue of the Biennial Retrospect. It has been decided also to publish only occasional fasciculi of the Atlas of Skin Diseases.

The principal new undertaking is the issue of a comprehensive Atlas of Pathological Anatomy. This will consist of plates not too large to be bound in a volume, and will be accompanied by full descriptive letter-press. It is proposed to publish a fasciculus each year, and that for the current year will take Diseases of the Kidney.

It is expected that Dr. Gordon Latham will undertake the editing of the Society's edition of Mayne's Lexicon.

The works of the late Dr. Peter Mere Latham, with biography, prefaces, and annotations, are to be published in two volumes, under the editorship of Dr. Robert Martin.

An edition of Smellie's Midwifery, largely annotated by Dr. M'Clintock, of Dublin, is now in the printer's hands.

A second volume of German Clinical Lectures, selected from Professor Volkmann's series, published in Leipsic, is in preparation.

The collected works of the late Abraham Colles, of Dublin, are to be published, under the editorship, with annotations,. of Dr. McDonnell. The society has received the permission of Professor Billroth, of Vienna, to publish a translation of his well-known work on "Surgical Pathology and Therapeutics," from a new edition which is now in preparation, and with the author's latest additions.

Amongst the works which are under the Council's special consideration at present, but have not yet been adopted, are Kohler's "Treatise on Remedies" and the new edition of Kölliker's work on "Development of Man and Animals;" also an edition of selections from the writings and manuscripts of the late Dr. Hodgkin.

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The Argenteuil Prize.—No award of this prize has been made by the committee on prize essays of the Academy of Medicine of France this year, but two of the memoirs presented were reported as worthy of honourable mention. The first of these is that by Dr. T. H. **Squire**, of Elmira, New York, who has, besides the honourable mention, been awarded a recompense of 1500 francs, as an encouragement for his interesting researches on stricture of the urethra.

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Faculty of Medicine of Geneva. — Dr. **Brown-Sequard** was offered the chair of Experimental Physiology in this faculty, but declined. It has been since offered to M. Maurice Schiff, the eminent professor of Florence, who has accepted. The difficulties which have been thrown in the way of Prof. Schiff's experiments on animals by certain narrow-minded fanatics in Florence, and the ridiculous accusations made against him for his vivisections, it is stated, have influenced him in exchanging his professorship in Florence for that in Geneva.

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Incombustible Paper.—The Canon Vittoria de Coronas of Arezzo has discovered a method of making paper from asbestos. This paper has been found, by the most satisfactory tests, to be entirely incombustible, and will be most valuable for documents which it is important to preserve from fire, and also for the hangings, etc., of theatres, as a means of avoiding such a terrible conflagration as occurred at the "*Theatre des Arts*," at Rouen.—*Revue Scientifique*, 13 May, 1876.

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Smallpox —London seems to be threatened with an epidemic of this disease. The number of cases which have recently occurred are considerable, and were increasing at last accounts.

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Obituary Record.—Died, June 2, 1876, in the 57th year of his age, Dr. **Joseph Eleonor Petrequin**, ex-surgeon-major of the Hôtel-Dieu of Lyons, honorary Professor of the School of Medicine, former President of the Academy of Sciences, of Belle-letters and Arts of the National Society of Medicine of Lyons, etc. etc. Prof. P. was not only a brilliant surgeon and teacher, but possessed also vast erudition. He translated the surgical works of Hippocrates, and enriched them with valuable notes.

—— Suddenly, from apoplexy, June 15, **Louis Stromeyer**, the illustrious Hanoverian surgeon. In our number for June last, p. 102, we gave an account of the distinguished honours recently heaped upon him on the occasion of the 50th anniversary of his reception of the degree of Doctor of Medicine.

—— May 10, 1876, of dropsy, **Ludovic Hirschfeld**, Professor of Anatomy in the University of Moscow—the learned author of an atlas of the nervous system and of the organs of sense.

NEW MEDICAL WORKS—(Just Ready.)

PLAYFAIR'S MIDWIFERY.

A TREATISE ON THE SCIENCE AND PRACTICE OF MIDWIFERY. By W. S. Playfair, M.D., F.R.C.P., Professor of Obstetric Medicine in King's College, etc. In one handsome octave volume, with 166 illustrations.

The distinguished reputation of the author is sufficient assurance that this volume will fully meet its object of presenting to the practitioner and student, within a moderate compass, a trustworthy work of reference and text-book on obstetrics in its most modern aspect.

These volumes will, from the honest purpose of their author and the ability of its execution, at once take a position in the highest rank of obstetric works, and must prove a most useful guide in this most anxious and responsible branch of the profession.—*Lond. Lancet*, June 24, 1876.

We congratulate the profession and Dr. Playfair on the appearance of this most valuable work. We find his practical recommendations to be, on the whole, sound and simple. The work is an excellent one. We need scarcely say that we recommend it to practitioners, teachers, and students. It is secondary to no similar treatise in the language; superior to most—*Edinburgh Med. Journ.*, July, 1876.

CARTER ON THE EYE.

A PRACTICAL TREATISE ON DISEASES OF THE EYE. By R. Brudenell Carter, F.R.C.S., Ophthalmic Surgeon to St. George's Hospital, etc. Edited, with additions and test-types, by John Green, M.D., of St. Louis, Mo. In one handsome octavo volume of about 600 pages, with 91 illustrations: cloth, $3 75.

Carter on the Eye is well worthy of study by the oculist or by the surgeon who has a desire to acquaint himself with the recent progress of ophthalmic surgery. It is eminently readable. We have the author's views expressed most openly and in language both terse and choice. In it we have the results of Mr. Carter's experience and observation fully revealed, and the only treatment, as a rule, spoken of and recommended, is that which he himself has found most beneficial. —*Edin. Med. Journ.*, March, 1876.

WINCKEL ON CHILDBED

THE PATHOLOGY AND TREATMENT OF CHILDBED. A Treatise for Physicians and Students. By Dr. F. Winckel, Professor and Director to the Gynæcological Clinic in the University of Rostock. From the Second German Edition, with Notes by the Author. Translated by James Read Chadwick, M.D., Clinical Lecturer on Diseases of Women, Harvard University. In one handsome octavo volume: cloth, $4 00.

The treatise of Dr. Winckel is, in Germany, the standard authority in this branch of medicine, and the volume before us will prove a valuable addition to American medical literature, as it presents the views of the more prominent men who have contributed to a better appreciation of the pathology and treatment of the diseases of childbed. Winckel on the Diseases of Childbed is a treatise which should be in the hands of every physician who would conscientiously practise obstetrics, and the thanks of the profession are due to the translator who has made this treatise accessible to us.—*St. Louis Clinical Record*, June, 1876.

FLINT ON PERCUSSION AND AUSCULTATION.

A MANUAL OF PERCUSSION AND AUSCULTATION, OF THE PHYSICAL DIAGNOSIS OF DISEASES OF THE LUNGS AND HEART, AND OF THORACIC ANEURISM. By Austin Flint, M.D., Professor of the Principles and Practice of Medicine in Bellevue Hospital Medical College, New York. In one handsome royal 12mo. volume: cloth, $1 75.

The close attention which the author has for many years paid to this department, and the very extensive opportunities which he has enjoyed for observation, are a sufficient guarantee that the work will fully attain its object. A summary of the contents is herewith presented.

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Chapter I. Introduction.—Definition of Auscultation and Percussion—The Sounds obtained by these Methods, and their Significance. II. Percussion in Health. III. Percussion in Disease. IV. Auscultation in Health. V. Auscultation in Disease. VI. The Physical Diagnosis of Diseases of the Respiratory System. VII. The Physical Conditions of the Heart in Health and Disease—The Heart-Sounds and Cardiac Murmurs. VIII. The Physical Diagnosis of Diseases of the Heart and of Thoracic Aneurism.

HENRY C. LEA, Philadelphia.

Notice.—In the Advertisement of the *University of Pennsylvania* in the July No. of the *American Journal of the Medical Sciences*, by an error of the printer the name of Horatio C. Wood, Jr., M.D., as Professor of Materia Medica and Pharmacy, was unfortunately omitted.

THE MEDICAL NEWS AND LIBRARY.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on the Treatment of Compound Depressed Fractures of the Skull. By SAMPSON GAMGEE, F.R.S. Surgeon to Queen's Hospital, Birmingham.

GENTLEMEN: Is the trephine to be employed or not in compound fractures of the skull, with depression? No question more than this has engaged the attention of practical surgeons: it is still unsettled, and I shall endeavour to lead you to a correct understanding of its merits in commenting on three cases which I have to bring before you. In each case the scalp was divided, and the bones of the skull were broken and driven in, without, however, producing evidences of injury to the nervous centres. In none of the cases was the trephine employed; in all the result has been perfectly successful.

The man before you, Thomas Moran, a bricklayer's labourer, aged 55, was admitted to Ward 3 on September 15th. While he was at work just previously, a brick fell from a considerable height upon his head, making a Y-shaped scalp-wound about two inches and a half in length, and situated rather above the middle of the left parietal bone. The flap of the wound being turned back, a Y-shaped fracture became visible, with

Published monthly by HENRY C. LEA, Nos. 706 & 708 Sansom Street, Philadelphia, *for One Dollar a year; also furnished* GRATUITOUSLY *to all subscribers of the "American Journal of the Medical Sciences," who remit the Annual Subscription, Five Dollars, in advance, in which case both periodicals are sent by mail free of postage.*

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its centre depressed to one-third of an inch; the sides of the fracture sloping evenly towards the central and most depressed point. The man seemed little affected by the accident, and had no idea of its serious nature. The edges of the wound, admitting of easy approximation, were brought together and dressed with dry lint; and for the first fortnight the patient was kept perfectly quiet in bed, on milk diet, with an ice-bag on the head. No signs of constitutional disturbance appeared, and the man was discharged at the end of seven weeks, to use his own terms, "in as good health as ever he was in his life." The wound was then quite healed, and the area of the depressed bone measured one inch and a half longitudinally, seven-eighths of an inch transversely; its depth was three-eighths of an inch in the centre.

The next patient, Henry Hadden, a machinist, aged 25, was admitted into the Queen's Hospital at 11.20 P. M., on September 25th. A few minutes previously, in a street row, a brick had been thrown at his head, producing a wound an inch in length, over the left temporal ridge, in a line above and in front of the ear. The hemorrhage was considerable. The probe passed into a very abruptly punctured fracture of the skull; the amount of depression being half an inch, and the edges on one side at least, being quite perpendicular. Mr. C. W. Keetley, our house-surgeon, to whom I am indebted for the notes of these cases, made a memorandum at the time, to the effect that, in Hadden's fracture, a small piece of bone appeared to have been driven right in. The man was quite sensible, though faint from loss of blood. He was put to bed, with an ice-bag on the head. At 8.30 next morning, a little headache was complained of; the pupils were even; temperature 101 deg. A magistrate took the depositions at the bedside in the afternoon.

September 27th, morning. Pulse 80; temperature 98 deg. There was a thin drab fur on the dorsum of the tongue. The bowels were not open. He had slept well; was very hungry. The wound was healthy. His eyes were slightly swollen.

The bowels acted the next day. The wound gradually healed; and on October 9th, the ice-bag was left off, a flannel cap allowed to be worn, and the man to get up. At the end of another fortnight the man was discharged in perfect health; the cicatrix was quite sound; and the depression at the seat of fracture admitted the end of the little finger, which did not seem to touch bone at the bottom.[1]

The third case which I have to bring before you is that of T. Smith, a joiner's labourer, aged 25. He was stooping down at his work, when a brick fell on his head from a height of thirty feet. When admitted to Ward I (4.15 P. M., October 15th, 1875), half an hour after the accident, he was quite sensible. A wound on the left side of the head was bleeding freely; corresponding to it was a depressed fracture of the skull, the depressed piece of bone being horse-shoe shaped, and situated near the middle of the lambdoidal suture. The depressed surface was about one-eighth of an inch below the surrounding bony level. No head-symptoms. Pulse 80; temperature 99 deg.; respirations 24. The edges of the wound were approximated and dressed with dry lint. An ice-bag was ordered to be kept on the head constantly.

October 16th. Temperature 99 deg.; pulse 72; respirations 20. He was perfectly sensible. He had taken plenty of milk. He was ordered to have an ounce of castor oil.

17*th.* He slept four or five hours in the night. The bowels had acted. Temperature 101 deg.; pulse 104; respirations 22.

18*th.* Temperature 101.6 deg.; pulse 76; respirations 25.

November 19th, morning. Temperature 99.2 deg.; pulse 84; respirations 22. There were still no symptoms of serious lesion or constitutional disturbance.—7 P. M. Temperature 104.4 deg.; pulse 104; respirations 32. He had a rigor half an hour ago. A full dose of castor oil was administered, and the bowels freely relieved. No other untoward symptom occurred, and the rigor and rapid rise of temperature remained an inexplicable incident.

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[1] I saw this patient seven months after the accident, and he continued in perfect health.

December 8th. He had continued perfectly well, and for the last month had acted as assistant porter in the hospital. He was now discharged, and I made the following note: "The length of the cicatrix is one inch and three-quarters. The depressed portion of bone measures one inch and one-eighth, by seven-eighths of an inch. The depression is deepest in the centre, where no bone can be felt. The man looks perfectly well, and says that he is so."[1]

You have here three cases of compound depressed fracture of the skull, admitted within a period of one month, treated successfully, without the trephine or elevator. You may form some idea of the interest attaching to these cases, by a statement of Erichsen, that, with a single exception, he does "not recollect ever having seen a case recover, in which a compound depressed fracture of the skull occurring in the adult had been left without operation."[2]

Prescott Hewett's counsel is given in no doubtful terms. "What," he asks, "is to be done, supposing there be a wound leading down to the bone in a depressed fracture of the vault without symptoms? The rule is that we are to operate and at once."[3] With the utmost regard for this dictum of one of the most thoughtful surgeons of our time, who has made injuries of the head the special object of his clinical studies, and conceding that, in his advocacy of operative interference in compound depressed fractures of the skull, Prescott Hewett is at one with many eminent surgeons, especially British, I am clearly of opinion that the practice followed in the cases before you should be the rule of practice.

When addressing you on the treatment of compound fractures of the limbs, I have sought to impress upon you the wisdom of the precept, "to aim at reducing a compound to the condition of a simple fracture, and to treat both alike."[1] This precept is equally applicable to compound depressed fractures of the skull, when the brain is not injured.

Although unanimity has not yet been attained, the progress of surgery has powerfully contributed to the establishment of this proposition. A century ago, operative interference was the rule in all fractures of the skull. It was Quesnay, himself an advocate of the practice of interference, who gave force to the opinions of dissentients, by the very title of one of those masterpieces of clinical study embodied in the memoirs of the old Academy of Surgery.[2] It fell to the lot of another of the academicians to substitute for traditional empiricism rules of practice as prudent and safe in their application, as their conception was enlightened and their demonstration closely and carefully reasoned. With few reservations, Desault was opposed to the use of the trephine in fractures of the skull.[3] It was otherwise with his great rival on this side of the Channel, Percival Pott. The elevator and trephine were his favourite instruments, and so great was his ascendancy in the surgical world, so much more fascinating for the multitude, then as now, were boldness and complication than prudence and simplicity, that his heroic action had many imitators;[4] foremost amongst whom was his most illustrious pupil, John Hunter, who went so far as to advocate the trepan in some doubtful cases, "as the operation can do no harm."[5] The impending French

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[1] I have seen this patient while this lecture has been in the press. The man continues (nine months after the accident) perfectly well, never having missed a day's work. Three small pieces of bone have worked through the cicatrix, which is quite solid, pale, and painless, over the depressed bone.

[2] Erichsen, Science and Art of Surgery, sixth edition, 1872, vol. i. p. 433.

[3] Prescott Hewett, on Injuries of the Head, in Holmes's System of Surgery, second edition, vol. ii. p. 271. London, 1870.

[1] On the Treatment of Fractures of the Limbs, by Sampson Gamgee, p. 112. London, 1871.

[2] Précis de Diverses Observations sur le Trépan dans les Cas douteux, par M. Quesnay. Mémoires de l'Académie Royale de Chirurgie, 8vo. edition, tome i. p. 311, et seq Paris, 1774.

[3] Œuvres Chirurgicales de P. J. Desault, par Xavier Bichât. Paris, an. ix. 1801. Mémoires sur les Plaies de Tête, vol ii. page 1, et seq

[4] Fractures of the Cranium, with Depression, in the Chirurgical Works of Percival Pott, vol. i. p. 213, et seq. London, 1783.

[5] The Works of John Hunter, F.R.S., with notes, edited by James F. Palmer, vol. i. p. 494. London, 1837

Revolution, and its attendant slaughter on the battle-fields of Europe was soon to furnish those lessons which, in surgical as in other experience, make men judicious.

When, after the battle of Talavera de la Reyna, the order was given for all the wounded who could leave the town to march, Surgeon Rose found himself in charge of a large number of the disabled Guardsmen. Twelve or fourteen of them had compound fractures of the skull, some with depression. In none of these was the trephine employed. The retreat in the burning sun lasted sixteen days, and yet every one of those who were wounded in the head recovered.[1]

Hennen[2] relates the case of Corporal Corkeyne, wounded by a musket-ball in the head at Waterloo. The fractured portion of bone was driven into the brain (being exactly an inch and one-fourth from the surface of the scalp). No operation was performed, and yet the man was discharged cured in a few weeks. After quoting a similar case, Hennen sums up: "We have here sufficient proof that there is no absolute necessity for trepanning, merely from depressed bones from gunshot"[3]—an opinion strengthened by the cumulative experience of military surgeons, many of whom now entirely discard the trephine, while almost all are agreed that its use should be restricted to very exceptional cases.[4]

Desault's conservatism told directly on the civil practice, not merely of his own countrymen,[5] but of British surgeons. John Bell[6] with his true surgical instinct, with his impetuous energy, and with the furbished eloquence of his ripe culture, threw in his lot against the trepan.

"After the expiration of my apprenticeship at these hospitals," Astley Cooper has placed on record,[1] "I went over to Paris, to see the practice of Desault at the Hôtel de Dieu; and there I found that scarcely ever under any circumstances did he trephine; and he was more successful than the English surgeons." Abernethy[2] and Lawrence,[3] too, were in this matter disciples of Desault, and on the same side must be mentioned one of the most enterprising surgeons of the century—a master who combined in a very rare degree fearlessness and judgment, power of brain, and skill of hands—I allude to Robert Liston. In his *Practical Surgery*[4] he thus writes: "When fracture of the skull is complicated with wound of the scalp, the surgeon will not in general mend matters much by trephining, as has been advised, merely because there is a wound; if the depression is pretty extensive, and unless he has a better reason to give for the proceeding than the mere circumstance of the fracture being compound, as it is called, he will often thus add as much to the injury and to the risk which the patient is subjected to by it, as he would by dividing the scalp in simple fractures."

This warning is of special significance, emanating as it does from one who had had abundant opportunities of witnessing the effects of the trephine and elevator, and who possessed operative skill and courage in so high a degree that he never felt the temptation to inaction as a refuge from responsibility.

Samuel Cooper[5] was equally conservative; but it is due to you to state that three of his contemporaries—Guthrie,[6] Brodie,[7] and Velpeau[1]—in the very first rank of surgical authorities, rather inclined to the heroic practice of Pott than to the physiological watchfulness and the gentle medical measures of Desault. Italian surgery[2] has gradually come round to non-interference as the rule of practice in fractures of the skull, while the German school has traditionally been opposed to the trephine.[3] Neudörfer, writing after the Franco-German war, sums up directly against it.[4] Mac Cormac[5] reflects the experience of the French and German surgeons on the battle-field of Sedan, in the statement that, "as a general rule, the largest proportion of good results (in gunshot fractures of the skull) obtain amongst those cases where the amount of operative surgery has been at a minimum."

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[1] Quoted in Ballingall's Outlines of Military Surgery, fourth edition, pp. 288-9. Edinburgh, 1852.

[2] Principles of Military Surgery, by John Hennen, third edition, p. 290. London, 1829.

[3] Desault's Op. cit., p. 291.

[4] Vide Professor Longmore on the Treatment of Gunshot-Wounds of the Head, in Holmes's System of Surgery. second edition, vol. ii. p. 175, et seq. 1870.

[5] Dupuytren Leçons Orales de Clinique Chirurgicale, tome vi. Paris, 1839. Blessures de la Tête, p. 128, et seq.

[6] On Fractures of the Skull, with Depression, in John Bell's Principles of Surgery, vol. ii. part ii. p. 764, et seq. London, 1806.

[1] Lectures by Sir Astley Cooper on the Principles and Practice of Surgery, with Notes and Cases, by F. Tyrrell, vol. i. p. 279. London, 1824.

[2] The Surgical Works of John Abernethy, a new edition, vol. ii. pp. 24-5. London, 1827.

[3] Quoted in Guthrie, on Injuries of the Head affecting the Brain, p. 118, et seq. London, 1842.

[4] London, 1846, fourth edition, p. 45.

[5] Article "Trephine" in Dictionary of Practical Surgery, by Samuel Cooper, seventh edition. London, 1838.

[6] On Injuries of the Head affecting the Brain by G. J. Guthrie, p. 92 and 117. London, 1842.

[7] Pathological and Surgical Observations relating to Injuries of the Brain, by B. C. Brodie

Jules Rochard[6] has contributed an interesting summary of the international position of the question. Speaking of trephining, he says: "The spirit of reserve distinguishes French surgery. It holds a position between the practice of the Germans, who scarcely ever trephine, and that of the English and of the Americans, who, though resting on the same rules as ourselves, have much more frequently recourse to this operation. Léon le Fort has analyzed the trephine operations on the two sides of the Channel from 1855 to 1866. He has found one hundred and fifty-seven of them in England, and only four in France, in that period."

The authorities I have quoted will be sufficient to convince you that the masters of our science have treated this question as a very important and difficult one. From their differences you will learn caution and toleration in judging others, and the need of most careful inquiry, before you determine to use the trephine. The three patients whom I have brought before you with compound depressed fractures of the skull, successfully treated without the trephine or elevator, have not recovered by accident or in virtue of a curious coincidence. As many authorities are against me, I have deemed it my duty to compare my opinion with that of others, for your instruction. In examining the question from an historical point of view, I do not pretend to have exhausted it; but I do hope to have proved that the progress of opinion has, on the whole, been in favour of non-interference, when the scalp is wounded and the skull broken and driven in;[1] without, however, producing symptoms of brain-lesion. The lesson very impressively taught by a careful study of the subject is this: that whereas the trephine was almost indiscriminately employed before surgery attained to the position of a science, its use has steadily decreased as enlightened experience has accumulated. Many surgeons, from being advocates of the trephine, have gradually abandoned it; but, so far as my researches have extended, I cannot find an instance of conversion to the practice of trephining by a surgeon whose reason indisposed him to adopt it, or whose experience had once led him to relinquish it. That there may be cases of compound depressed fracture of the skull justifying operative interference I do not deny, and I myself had occasion to operate successfully on such cases in this theatre. Another opportunity may present itself for discussing these cases. For the present, I shall limit myself to

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F.R.S., in Medico-Chirurgical Transactions, vol. xiv. London, 1828.

[1] Velpeau, De l'Opération du Trépan dans les Plaies de Tête. Paris, 1834.

[2] Lezioni de Medicina Operatoria e di Patologia Chirurgica di Regnoli e Ranzi, volume quarto, p. 47, et seq. Firenze, 1850.—Instituzioni di Patologia Chirurgica, scritte da Felice de Rensis e Antonio Ciccone, terza edizione, volume primo, p. 178, et seq. Napoli, 1852.

[3] Vide Durchbohrung des Schädels in Die Chirurgischen Krankheiten und Verletzungen des Gehirn und seiner Umhüllungen von Victor Bruns, p. 1037, et seq. Tübingen, 1854.

[4] "Die Trepanation niemals eine Heil-Operation sein kann." Neudörfer, Handbuch der Kriegschirurgie und der Operationslehre. Zweite Heft. Specielle Theil. Leipzig, 1872. Erste Abtheilung, p. 82.

[5] Notes and Experiences of an Ambulance Surgeon, by William Mac Cormac, p. 65. London, 1871.

[6] Histoire de la Chirurgie Française au XIXe Siècle, p. 862. Paris, 1875.

[1] Since this lecture was delivered, Mr. Bryant has published the second edition of his Practice of Surgery, and Mr. T. Holmes his Treatise on Surgery. Both authors are substantially in agreement, though Mr. Bryant is much more decided that the trephine should not be employed in compound depressed fractures of the skull without brain-symptoms.

again impressing upon you my conviction that, in compound depressed fractures of the skull without brain-symptoms, the proper course of practice is NOT TO TREPHINE.—*British Med. Journ.*, July 3, 1876.

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Part of a Clinical Lecture on Corymbiform Arrangement of Eruptions as indicative of Nerve Causation. By JONATHAN HUTCHINSON, F.R.C.S., Senior Surgeon to the London Hospital —I am not certain, gentlemen, that corymbiform is precisely the best word to use for what is meant, but it is already in possession. Writers speak of "corymbiform smallpox," "corymbiform herpes," and the like, when they mean that the patches of eruption consist of separate, or, in some cases, confluent spots, which are arranged in a thick cluster, with irregular edges, like a bunch of grapes, or like the leaves on a small beech branch. Any one who has ever looked carefully at a shingles patch will know exactly what I mean. In many cases, to call it paniculate would be more appropriate; but, after all, there is no botanical object which supplies a condition of things precisely similar. The herpes group is like a bunch of grapes in its middle; but it differs from it, and from anything which I can call to mind in the corymbs or panicles of flowers, in that there are generally a few twigs which project a good deal beyond the rest; there are also generally a few which came off from the main stem higher than the main branch. These features will be easily understood, if we allow ourselves to realize the ultimate distribution of nerve-twigs, their subdivision and re-subdivision, before they reach their final destination in the corpuscles of the skin In this conception we have also the real explanation of the phenomenon.

Whenever you observe corymbiform arrangement of spots, you may infer that the nervous system is concerned, if not primarily in the cause of the eruption, at any rate secondarily or mediately in its distribution. All forms of herpes are invariably corymbiform, and invariably due to nerve-cause; and if the eruption did not show this peculiarity of arrangement, we should, according to the modern use of the name, deny that it was "herpes." This is what might be expected *à priori*, for, according to our theories of herpes, this eruption depends invariably upon nerve-irritation. There are some other conditions, however, under which we meet with corymbiform or branch-of-tree arrangement, when from our knowledge of the cause we should not have expected it. I pointed out to you the other day, in a case in which a free vesicular eruption followed the use of the iodide of potassium, that some of the groups on the neck were corymbiform—in fact, exactly like those of herpes. This occurred on the left side of the neck. I have seen a syphilitic eruption definitely corymbiform in parts. The same character occurring occasionally in variola, has excited the notice of many writers: in fact, a very distinguished observer has thought that he could always trace this arrangement in all forms of smallpox. I myself have tried to do so, but think that this requires the aid of imagination to a considerable extent; yet the fact remains undoubted, that the character in question is often most conspicuously marked. In the cases in which I have seen it, it has usually been non-symmetrical.

Now the point upon which I wish to insist to-day is, that whenever you observe corymbiform arrangement, whatever may be the nature of the primary cause, you may safely believe that the distribution is effected through the nervous system. There is no other way of accounting for it. Now, see what follows. If this be so, then it must be possible for a blood-poison to so affect certain definite parts of the nervous system—the ganglia, say, of special spinal nerves—as to induce changes of nutrition in the parts to which they are distributed. Of extreme interest in reference to this point is the observation, that arsenic introduced into the blood and allowed to act on the whole system, may cause, as the sole conspicuous result of its activity, an eruption of herpes zoster. I say of herpes zoster, for the eruption is, in truth, in no single feature, either of appearance or in clinical course, distinguishable from zoster: it is zoster to all intents and purposes. In the case of syphilis and variola, when corymbiform patches occur, their resemblance to herpes zoster ends with their type of arrangement, and they obey in other respects the laws of the specific blood-causes named. Thus I have seen what might be called syphilitic herpes persist for weeks in a manner which is never witnessed in common zoster, the spontaneous and easy disappearance of which is well known. Arsenical zoster, on the other hand, comes out and disappears just according to what we know of the idiopathic form—that is, after a very brief duration. Possibly other drugs besides arsenic may occasionally cause herpes zoster. I have mentioned above a resemblance to it produced by iodide of potassium; and I showed you the other day a severe case, for seeing which I was indebted to my colleague, Dr. Hughlings Jackson, and in which it occurred during the administration of the bromide.

You will see that it becomes less easy than we might have at first thought to be the case, to infer from a known cause as to the precise relationship to itself and to each other of its varied results. When we speak of certain local results being due to a state of blood-poisoning, we mean that the poison in question, circulating free in the blood, excites, by its local action on the cell-structures which receive it, the effects which we witness. We do not mean, or at any rate not usually, that it affects certain nerve-nuclei, and so changes their condition that they originate disturbances of nutrition in parts at a distance and connected only by nerve-cords. This is to take the malady in question out of the category of blood-diseases, and transfer it to that of the neuropathic affections. Let me add, that the knowledge that a blood-cause can originate a neuropathy is to some extent new, or at any rate has not received the attention which it deserves. It has long been acknowledged that ague-poison might cause local neuralgia, but I think that few have as yet made their minds familiar with the conception of local disturbances of nutrition as having their origin in nerve-disturbance due to a blood-cause. Thus a wide and probably a very valuable field is opened for observation, and chief among the special symptoms which will help us are the corymbiform types of skin-eruptions. We must observe further and more closely as to the circumstances under which they occur; with what drugs or with other kinds of blood-poison they are associated. For the present, to recapitulate, we know them chiefly in herpes, in smallpox (occasionally), morphœa (Addison's keloid). syphilis (rarely), and the rashes due to arsenic and iodide of potassium; but probably these are but a small part of the whole of those in which occasionally this law of distribution is illustrated.—*British Med. Journ.*, May 20, 1876.

HOSPITAL NOTES AND GLEANINGS.

Cases of Acute Rheumatism treated by Salicine.—The following four cases of rheumatic fever have been treated by salicine in University College Hospital by Dr. Sydney Ringer. In each case the patient was a female, the age being between seventeen and thirty years. Three of the patients had never before suffered from rheumatic fever; the fourth had an attack twelve months previously. In none of the cases was the rheumatism due to syphilis or lead-poisoning, neither was it gonorrhœal. It was simple rheumatic fever.

Case I.—A pale anæmic looking girl, aged 17, attributed her present illness to washing and standing in the damp. She had not had rheumatism before. Her parents were free from this and from gout. She came under observation four days after the attack.

On admission, the left knee and right shoulder were chiefly affected, but the other joints also to less degree. Temperature 102.1 deg.; pulse 110. The heart-sounds were normal, and there was no pericardial effusion. The patient commenced with twenty grains of salicine three times a day. This was continued for five days with no result. The temperature was 103.5 deg.; on the fifth day, it was 102 deg. The pulse remained also just as on admission. The same dose of salicine (gr. xx) was then given every two hours; and in five days the pulse had fallen to 70, but the temperature continued 100 deg. On the fourteenth day, the salicine was increased to thirty grains every two hours. Next day, the temperature was 99 deg., and did not afterwards rise above this. On the eighth day, a systolic murmur at the apex was detected; and the same day a pulmonary murmur at the base was first heard. On the tenth day, loud friction-sound was audible over the cardiac region; and on the twelfth day pericardial effusion had reached the second rib. The friction continued to the seventeenth day. The joints one after another became painful, in a greater or less degree, until the twenty-second day, when the patient commenced to take iron. The bowels were costive throughout.

Case II.—The patient, aged 27, had always worn flannel, but had lived badly. This was the second attack. The mother and father were also subject to rheumatism. The present illness, due to damp, commenced April 9th, and she came under treatment twelve days afterwards. On admission, there were great pain and swelling of almost all the joints, including the fingers and toes. The lower jaw was not affected. The organs of respiration were healthy. There was no pericardial effusion, but a distinct basic systolic murmur, and a murmurish condition of the first sound at the apex. Temperature 101.6 deg.; pulse 100. The patient was given twenty grains of salicine every two hours. In two days, the temperature had fallen to 99.4 deg., and the pulse to 90. Nearly all the pain in the joints had disappeared. On the fourth day of treatment, or sixteenth of the disease, the temperature became normal, when it suddenly rose to 100.4 deg., but became 98.4 deg. in twenty-four hours. The pulse fell about six beats daily, and on the sixth day was 68. The mitral murmur, which was scarcely audible on admission, became well marked; the aortic obstructive murmur was not changed. No pericardial effusion could be detected. When she was first seen, the tongue was covered with thick creamy fur. On the third day, some aperient medicine was required, after which the bowels were perfectly regular. The patient was convalescent on the seventh day.

Case III.—The patient was a nurse in the hospital, aged 20. She never had rheumatic fever before, but there was a family history of rheumatism. She came under treatment on the second day, with a temperature of 102.8 deg., and a pulse of 136. The respirations were 24. The joints affected were the knees and ankles. There was considerable œdema of the lower extremities as high as the knees, which was not confined to the joints. In this case, there was no cardiac mischief; but the patient suffered from constant vomiting and almost entire suppression of urine, which was not albuminous. For the first two days, the patient took some citrate of potash, during which the urine became normal in quantity, and the vomiting ceased. The shoulders and elbows became affected; the temperature on the fourth day being 102.6 deg., and pulse 120. Salicine was given in twenty grain doses every two hours. The next (fifth) day, all the joints were much less painful. The pulse was 98, having fallen twenty-two beats in twenty-four hours. The evening temperature was 100 deg. On the sixth day (third of treatment), there was no pain of the joints. The temperature was 99.3 deg.; the pulse had fallen ten beats. The patient slept without hypodermic injection for the first time. On the seventh day, the evening temperature rose to 100.4 deg. Next morning, it was normal. The pulse had not risen with the temperature. On the eleventh day, the temperature suddenly went up to 100.4 deg., and the pulse to 102, without any apparent cause; and then fell gradually to the fourteenth (eleventh of treatment), when it became and remained perfectly normal. No cardiac disease was developed, and there was no pain in the joints after the sixth day. There was a tendency to constipation throughout.

Case IV.—A healthy-looking girl, aged 19, caught cold by walking too fast. She never had any rheumatism before, There was no hereditary predisposition. She came under treatment on the fifth day of her illness. The knees, hips, ankles, shoulders, and elbows were affected. The temperature was 101 deg.; the pulse 132. There was no pericardial effusion, but a soft blowing systolic murmur at the apex.

Constipation was not very marked. The patient commenced with thirty grains of salicine every second hour. The next morning, the temperature had fallen to 98.8 deg., and the pulse to 108. The pain of the joints was very little altered. The same evening, the temperature went up to 100.2 deg., but since then did not reach 100 deg. After taking salicine four days, the temperature had gone from 101 deg. to normal. The pulse was 88; but the patient complained of pain in the left mammary region, and there was a slight increase in the cardiac dulness. There was no pain in the joints; but the evening temperature continued about 99 deg. till the ninth day, after which it was 98.4 deg. On the ninth day, the cardiac dulness was normal. The mitral murmur increased in intensity whilst the patient was under treatment.

Remarks.—In Case 1, salicine seemed not to have the least effect whilst sixty grains *per diem* were being taken. A daily dose of 240 grains brought down the pulse in five days from 110 to 70. The temperature did not become normal under this dose, and 360 grains daily did not entirely reduce it. The murmur developed and the effusion took place whilst 240 grains were taken daily. In this case, the temperature was highest (103.5 deg.), and the pulse not so frequent. The salicine was not so efficacious as in the others.

In the second case, the temperature and pulse rapidly fell; but the effect on the pulse was most marked. The mitral murmur developed in intensity under treatment. The patient was convalescent on the seventh day, but had been ill twelve days previous to treatment.

In the third case, there was a marked falling of temperature (2.6 deg.) within the first twenty-four hours of taking salicine. The pulse was more frequent than is usual in rheumatic fever, and fell twenty-two beats in one day, and afterwards ten beats a day, till it reached 70. No murmurs were developed.

In the fourth case, there was not much fever, and a frequent pulse; this fell twenty-four beats in one day, and eight for the next two days.

In all the cases except one, the patients had on linen clothes, and were not wrapped up in cotton-wool.

Summary.—From the above cases, it will be seen that salicine, to be efficacious, must be given in doses of twenty or thirty grains every two hours. *a.* It entirely relieves the pain in the joints in an average of four days. *b.* It brings down the temperature in an average of eight days, after which the temperature is normal. *c.* On the pulse, its action is most marked, if that be very frequent. It becomes normal in from three to five days. *d.* It does not prevent valvular disease or pericardial effusion. *e.* It does not produce nausea or vomiting, but in each case it produced constipation.—*British Med. Journ.*, July 8, 1876.

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Deligation of the Deep Palmar Arch.—By Alex. Ogston, M.D., Surgeon to the Aberdeen Royal Infirmary.

In punctured wounds of the deep palmar arch, any addition to our methods of treatment will certainly be welcome, if my individual experience be a fair sample of that of other surgeons. I have seen plugging of the wound, flexion at the elbow-joint, vertical elevation of the arm, pressure on and deligation of the arteries of the forearm and arm, fail to arrest the bleeding from a wounded deep palmar arch. I, therefore, venture to put on record the following case, in which a ligature was applied at the spot where the artery was wounded, as the same proceeding might doubtless be applied to other cases of the same nature.

J. S., aged 16, clerk, was sent to me at the Aberdeen Infirmary on March 6th, by Dr. Stone of Laurencekirk. On February 28th, while jesting with a comrade, he received a punctured wound from a knife. The wound was on the radial side of the right wrist, in the triangular interval between the tendons of the extensors of the first and second internodes of the thumb. It passed deeply downwards and inwards to the palm of the hand, the carpal corner of the metacarpal bone of the thumb being cut off by the knife. The bleeding was to an alarming extent, and, as it was impossible to secure the vessel, Dr. Stone applied compression; this stopped the hemorrhage, but produced inflammation and suppuration, and had to be relaxed on February 3d, three days after the accident. The wound improved and was doing well, and the pads were removed on the morning of the 5th ; but that same evening, five days after the injury, the bleeding suddenly recurred. Compression was again applied, and he was sent to the Infirmary.

When he was admitted, Esmarch's bloodless bandage was put on, and the wound was enlarged without dividing the tendons of the thumb, but the bleeding vessel could not be found. It was pretty evident, however, that the blood came from the deep palmar arch, and a traumatic aneurism was found in the palm, of the size of a small plum, and lined with laminated clot, which was drawn out entire.

The bleeding was restrained for two days by a plug, until it could be considered what was next to be done. Deligation of the arteries of the forearm, or of the brachial artery, offered no great prospect of success ; but there seemed to be a possibility that, by detaching the origin of the abductor indicis from the outer side of the metacarpal bone of the index finger, the vessel might be reached and secured *in situ*.

This was accordingly carried out on Thursday, March 9th. The parts were rendered bloodless by Esmarch's constriction, and an incision was made on the back of the hand, parallel and immediately external to the radial border of the metacarpal bone of the index finger, commencing a finger's breadth above the metacarpo-phalangeal joint, and extending upwards till it terminated over the trapezium. This incision involved only the skin. By deepening the wound, the outer edge of the metacarpal bone was reached, and the origin of the abductor indicis was separated from the bone for its whole length, from the very lowest part of the incision (but without interfering with the insertion of the muscle) up to the upper part where the radial artery passes between its two origins to dip into the palm of the hand. This separation of the muscle at the upper part opened into the original wound. On drawing the detached abductor indicis away from the bone by retractors, the radial half of the deep palmar arch was visible without any further dissection ; and a slit-shaped wound, one-twelfth of an inch long and running parallel to the calibre of the vessel, was easily seen in it, and demonstrated to all who were assisting at the operation. A drop or two of blood, which had escaped the action of Esmarch's bandage, could be squeezed out of the slit by pressure with the fingers in the palm. An attempt to elevate the wounded part as a loop, with an artery forceps, and pass a ligature round it, did not succeed, from the difficulty of slipping the ligature far enough along the blades of the forceps ; but a tenaculum, introduced from the original wound, elevated the wounded part with ease, and, lifting it up as a loop, allowed an aseptic silk thread to be passed round, and so both ends to be secured at the same time.

On removing the tourniquet, there was a little oozing for a few minutes from the incisions, but no vessel required to be ligatured. The wound was washed with carbolic water, and treated by Lister's antiseptic dressings.

There was no subsequent bleeding. The ligature came away on March 12th. On March 28th, the granulations were level with the skin ; and on the 31st he was dismissed, with every promise of perfect movement both of the thumb and the index finger.

On May 24th, I learned from Dr. Stone that the "hand is quite useful."—*Brit. Med. Journ.*, June 24, 1876.

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Removal of a Button from the Bronchus.—An eminently successful and novel method was resorted to on great emergency for the removal of a button from the left bronchus of a lad, at the London Hospital, on the 12th inst. The patient, aged thirteen, had accidentally slipped the button into his trachea on April 23d, where it had remained without producing very serious symptoms until May 11th, when it fell into the left bronchus, producing symptoms of collapse of the lower lobe of the lung. Mr. Maunder, having performed tracheotomy, first inverted and shook the patient, but with no success; he then placed the patient on his back and pressed through the wound into the left bronchus about seven inches of looped silver wire, and was successful in withdrawing the button, together with a quantity of mucopurulent matter. The patient's urgent symptoms rapidly disappeared, and he is at present doing well.—*Lancet*, May 20, 1876.

MEDICAL NEWS.

ORIGINAL ARTICLES.

Case of Constitutional Hemorrhage. By P. W. Douglas, M.D., Dublin, Ga.

I was called to a lad 11 years old, in consultation with my friend Dr. Carter. Found boy pale, cadaverous, and pulseless. The doctor remarked that he had used various caustic applications, nitrate of silver and persulphate of iron especially, and had done so for thirty-six hours without any abatement of the bleeding. He deemed it unnecessary, as I myself did, to enter into any consultation, as the diagnosis was too apparent, simply giving me his line of treatment, which, in addition to what has been already mentioned, consisted in laudanum and digitalis to quiet him, and reduce the heart's action, which was now alarmingly frequent. We continued the application of the Monsell salt, applied on the finger, and held firmly to the wound in the roof of the mouth, the sub-palatine artery was cut by a piece of glass bottle while eating. In about an hour and a half after my arrival, the parents stated to me that this was the fifth time that he had reached the verge of death from hemorrhage, caused by the slightest wound. One time an abscess was lanced, at another a tooth was pulled, at another a cut on the finger, etc. I at once decided to give him fl. ext. ergot, which was readily assented to by Dr. C. We gave him one drachm, and in thirty minutes the bloody water that had been oozing from his mouth in puddles on the floor ceased, the pulse increased in volume and became strong, a general warmth came to the entire surface, and the improved symptoms were so visible that hopes for his recovery were at once established. We gave him some laudanum with the next dose of ergot in an hour, and he passed a good night, and went on to recovery without an untoward symptom.

DOMESTIC INTELLIGENCE.

On some points on the Etiology of Hereditary Syphilis.—Dr. F. R. Sturgis read before the N. Y. Medical Journal Association (*New York Med. Journal*, July, 1876) an important paper on the subject of the transmission of syphilis. He argued that syphilis was not transmissible by the semen of the male parent, but that when the disease was communicated to the child it was through the mother. He then gave a brief *résumé* of the manner in which the virus of the poison was supposed to be absorbed into the blood, and argued if that view were correct, the child was diseased by the poison passing from the mother's blood. He reviewed some of the so-called cases of *infectio per seminem*, especially of Kassowitz, and showed in what they were defective. He then took up the other side of the question, in which syphilitic fathers had healthy children as long as the mother escaped infection. He concluded by giving three personal cases in which, from evidence presented, he was forced to conclude that children escaped infection as long as the mothers were not diseased.

Dr. Otis said that it was exceedingly difficult to come to a conclusion in investigating the etiology of syphilis, for the reason that there were so many knotty points that everywhere presented themselves. A conclusion that he had come to, however, was, that there was an active stage of the disease in which only it was possible to inoculate the uncontaminated. He had never seen a case in which the disease had been communicated three or four years after the appearance of the initial lesion. In regard to ulcerations of the mouth, much obscurity frequently veiled the diagnosis. Patients had often come to him for treatment with buccal ulcerations which readily yielded to local applications, and he was of the opinion that this class was caused by the use of tobacco, though they closely simulated the mucous patches of syphilis. Dr. Otis related an interesting case which showed how difficult it was to come to a correct conclusion in this matter. A man who had syphilis was married, and was tortured with the idea that he possibly might contaminate his wife. A healthy child was born, however, in due time, and the feelings of the father were quieted for the time. Several years afterward he asked Dr. Otis to see his wife, and on examination there was found to be mucous patches and other evidences of syphilis, which yielded to antisyphilitic treatment. It seemed at this stage of the investigation that the disease had appeared several years after the active stage had passed, but on cross-questioning the lady she confessed to having had intercourse with an old lover at a time sufficiently anterior to have produced this manifestation of syphilis. Dr. Otis said his patients maintained an exceedingly respectable position in society, and had he not elicited the foregoing facts he would have been compelled to adopt the view that the husband was the contaminating agent.

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Extirpation of the Uterus with both Ovaries for Fibro-cystic Disease.—This operation has been successfully performed by Dr. Gilman Kimball of Lowell.—*Boston Med. and Surg. Journ.*, July 13.

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Unusually Large Child.—Dr. Stebbins reports (*Boston Med. and Surg. Journ.*, July 27th) the birth of a male child in the practice of Dr. A. R. Rice, which weighed, unclothed, twenty pounds and two ounces. The child was well developed and of symmetrical proportions. The mother was a primipara. There was no rupture of perineum, and mother made a good recovery.

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International Medical Congress, 1876.—The International Medical Congress will be formally opened at noon on Monday, the fourth day of September, in the Chapel of the University of Pennsylvania. An address of welcome will be delivered by Dr. Samuel D. Gross, the President of the Centennial Medical Commission. On Monday evening a reception in the Judges' Hall on the Centennial Grounds will be tendered the Congress by the physicians of Philadelphia.

A detailed programme has been published in which each hour's work has been specifically assigned.

On Wednesday evening Surgeon J. J. Woodward will deliver an address on the Medical Staff of the U. S. Army and its Scientific Work.

The Public Dinner of the Congress will given on Friday evening in St. George's Hall.

Private hospitality has insured the nightly entertainment of the delegates during the session.

The Congress will undoubtedly be the most brilliant medical assembly ever gathered on this Continent.

Among the eminent foreigners who will be present, and whose names have not been previously announced, may be mentioned Mr. Joseph Lister of Edinburgh, the distinguished author of the Antiseptic Treatment of Wounds.

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American Neurological Association —The second annual meeting of this body was held in New York on the 7th of June, under the presidency of Dr. J. S. Jewell, of Chicago. The proceedings were marked by the presentation of a number of scientific papers, and by their intelligent discussion. The following officers were elected for the ensuing year. President, Dr. J. S. Jewell, of Chicago; Vice-Presidents, Drs. F. T. Miles, of Baltimore, and R. T. Edes, of Boston; Secretary, Dr. E. C. Seguin, of New York. The next meeting will be held in New York on the first Wednesday of June, 1877.

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Obituary Record.—Died July 21, in the neighbourhood of Boston, Walter Channing, M.D., in the 91st year of his age. Dr. C. was for nearly forty years Professor of Obstetrics and Medical Jurisprudence in Harvard University, and for twenty years Physician to the Massachusetts General Hospital. He was a gentleman of extensive acquirements, enjoyed a large practice, and was one of the first to administer ether to relieve the pains of labour, and was mainly instrumental to its general employment.

FOREIGN INTELLIGENCE.

New Plan of Artificial Respiration.—Dr. **Woillez** the talented physician of Lariboisière Hospital, has just presented to the Academy of Medicine an improved plan of artificial respiration for the drowned and stillborn. He has made numerous experiments on himself and others with the mechanical contrivance which he has invented, and he finds that it has the great advantage of dilating the lungs considerably, insuring respiration by the natural process of raising the ribs and lowering the diaphragm, and that it has not the inconvenience of rupturing the pulmonary vesicles.

Dr. Woillez's contrivance consists in a large zinc or iron cylinder of the size of an adult's body, hermetically closed at one end and open at the other. The patient is introduced into this barrel through the opening, which is afterwards closed by means of a diaphragm, leaving only the head of the patient in the open air. The air around the patient's body is then forcibly pulled out, or "aspired," from the cylinder by means of a powerful bellows, and as soon as the vacuum is established the patient's chest is seen to dilate, and the normal movements of breathing take place, as in the natural condition. By means of a pane of glass and a thin glass rod arranged in the cylinder, all the respiratory movements are easily recorded. According to Dr. Woillez, from twelve to fourteen litres of air can thus be introduced every minute into the respiratory organs, and the ease with which it thus penetrates, compared with the difficulties of ordinary processes of artificial respiration, makes the inventor think that it is superior to every other method for reviving the drowned and stillborn. Of course it applies, according to Dr. Woillez, to every other kind of asphyxia.—*Lancet*, July 8, 1876.

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Liqueur de la Grande Chartreuse.—M. **Decaisne** recently communicated to the Académie de Médecine an account of the results of the investigations he has been pursuing concerning the effects of the "Liqueur de la Grande Chartreuse" prepared in such increasing quantities by the Trappists, and the "Eau de Melisse" prepared by the Carmelites. The costly price of these articles, he says, alone prevents their doing the same amount of mischief as is done by absinthe; and even with this he has been able to observe six cases of complete alcoholism, which he details in his paper, produced by the use of "Grande Chartreuse." The same herbs are used in the three preparations, all containing active and even dangerous essential oils in somewhat varying proportions. In equal doses they produce similar effects on the nervous system.—*Gaz. Hebdom.*, June 16, 1876.

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Poison in Preserved Meats.—Prof. **Bouchardat** in his capacity as member of the Council of Hygiene and Salubrity, lately brought to the notice of the authorities that certain preserved meats, imported from foreign parts, were not only unfit for human food, but that in many cases they were even positively dangerous, as they contain poisonous substances. Thus, in a report submitted to the Prefect of Police, M. Bouchardat pointed out that in a specimen of ham, said to be imported from Cincinnati, the ham was enveloped in a cloth saturated with a yellow substance. This yellow substance was proved to be composed of the chromate of lead, a most deadly poison. It was suggested by the report that particles of the yellow substance may become detached, and be mixed up with the alimentary substances vended by grocers and others, and thus run the risk of poisoning those who make use of them. By a decree from the police, the substances so enveloped were seized and buried under ground, and future supplies are to be treated in a similar manner. M. Bouchardat suggests that, if the American purveyors prefer to have a yellow envelope around the alimentary substances they export, the chromate of lead may be substituted by any other yellow substance—turmeric, for instance, which is known to be entirely harmless.—*British Med. Journ.*, July 15, 1876.

United Twins.—Mr. ASHENDEN showed at a late meeting of the Southeastern Branch of the British Medical Association the interesting specimen of the "Hastings Twins." These were joined from the upper portion of the sternum to the umbilicus, which is common to both. The children were females, having but three nipples; in other respects, they were perfect. Their weight when born was 12½ lbs. The birth was a prolonged one. The mother was attended by a midwife. It was her sixth labour. One child was alive when its head was delivered, but died during the extraction of its fellow, which was stillborn. The mother was impressed at her second month of pregnancy by seeing an illustration of the Siamese Twins. The specimen was preserved in spirit, no dissection having been allowed.—*British Medical Journal*, June 17, 1876.

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Mechanical Restraint of the Insane.—The following extract from a most able and candid review of Lunacy in the United States, in the No. of the *British and For. Med.-Chir. Rev.* for July, 1876, which, though containing some curiously incorrect statements, furnishes a satisfactory comment on the uncharitable and prejudiced articles by Dr. Bucknill, published in recent Nos. of the *Lancet*, on the Insane Asylums of America, and the equally unjust criticisms of that journal on the subject of restraint as practised in these institutions:—

"Next to mural and manual means indispensable in bringing the insane under either moral or hygienic influences is mechanical restraint. One and all of American alienists concur in believing that coercion is a powerful adjuvant, in itself a moral instrument, and indirectly required in the application of medical remedies for the restoration of bodily health and for the preservation of life. This general accordance was confirmed by a vote of the Medical Association in 1844. While these scientific men are unanimous as to the propriety, or expediency, or usefulness of physical restraint, they differ widely as to the reasons and circumstances demanding its application, and as to the extent to which it may be carried, many of its advocates scarcely resorting to it at all, and others resting upon it as a frequent and potent aid. This creed does not harmonize with that formerly universal in Britain, but, as was shown in an article in this Journal lately, now accepted with a less rigid and more relaxed orthodoxy, and viewed in some quarters with scepticism. Non-restraint became the watchword of a party—of a persecuting party, which denounced all who rejected allegiance, all who preferred a thong to a threat, the embrace of a camisole to the hug of rough and determined hands—as cruel, unconscientious, and as incapable of appreciating the principles of medicine or the dictates of humanity; therefore we disliked it. That such a resource can be dispensed with is perfectly true, but so can medicine, as is done by certain nullifidian physicians, whose practice, if not their profession, is limited to fresh air, good food, and amusement run mad; but what we chiefly object to is, the denial of fellowship and sincerity to those who differ from us, the reluctance to admit that they should pursue a mode of practice inconsistent with our own, and that they are not actuated by the same high motives and by the results of an experience as wide as our own, though differently interpreted. The calm, dignified, pacific rebuke with which American alienists have met such insinuations should be compared with the harsh criticisms which are still directed against them. We lately conversed with a superintendent who, led, perhaps awed, by the example of Conolly, never resorted to restraint, whose career has nearly reached that crisis where our professional as well as our personal errors come to be reviewed and repented of, and whose concluding sentence was—"Three things I bitterly regret—1st, that I trusted too little to stimulants; 2d, too little to opium; 3d, too little to restraint."

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Medical Society of Yokohama, Japan.—We are indebted to Dr. Stuart Eldridge, the Secretary, for a copy of the Constitution, By-laws, and Code of Ethics of this recently organized Society. Its Code of

Ethics is that enacted by the American Medical Association in 1847. This code, which has been adopted, so far as we can learn, by every respectable medical society in this country, and has been translated into German and adopted by a prominent medical society in Germany, and now by the Medical Society of Japan, it may reasonably be inferred must thoroughly meet the requirements of the profession. It cannot but excite surprise, therefore, that certain members of the profession in this country holding high positions have latterly, it is said, been induced to disregard its wise precepts; it has even been proposed to relax its provisions, which must lead to the suspicion that the parties desiring such change are influenced by another motive than a desire to maintain the honour of the profession. The result of the course advocated is patent. Once commence to relax the requirements of the code and this process will regularly be continued until the ethics of the profession will be lowered to that of junk-shop keepers, and its character degraded to the level of that class. To preserve the profession from such humiliation the only possible course is for every medical society to exact from its members the strictest adherence to, not only the letter but, the spirit of our code, and to disown fellowship with every one, no matter how high his position, who violates any of its precepts. In this way, alone, can our profession be maintained above the level of a trade, and secure the respect, high position, and influence to which its beneficent objects, its noble purposes and unselfish labours justly entitle it.

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Disinfectants.—Dr. Baxter has instituted a great number of very careful experiments with a view to test the disinfecting properties of the so-called disinfectants commonly used. Evidence was adduced to show that carbolic acid, sulphur, permanganate of potash, and chlorine are all endowed with true disinfectant properties, through in very varying degrees. The effectual disinfectant operation of chlorine and permanganate of potash appears to depend far more on the nature of the medium through which the particles of the infective matter are distributed than on the specific character of the particles themselves. A virulent liquid cannot be regarded as certainly and completely disinfected by sulphur unless it has been rendered permanently and thoroughly acid. No virulent liquid can be considered disinfected by carbolic acid unless it contains at least 2 per cent. by weight of the pure acid. When disinfectants are mixed with a liquid it is very important to be sure that they are thoroughly incorporated with it, and that no solid matters capable of shielding contagion from immediate contact with its destroyer be overlooked. Aerial disinfection, as commonly practised in the sick-room, is either useless or positively objectionable, owing to the false sense of security it is calculated to produce. To make the air of a room smell strongly of carbolic acid by scattering carbolic powder about the floor, or of chlorine, by placing a tray of chloride of lime in a corner, is, so far as the destruction of specific contagion is concerned, an utterly futile proceeding. The practical result of these experiments goes to prove (1) that dry heat, when it can be applied, is probably the most efficient of all disinfectants; (2) that the old plan of stopping up crevices and fumigating with sulphur and charcoal is more efficacious than any other proceeding with more modern disinfectants; (3) that the use of carbolic vapour for disinfecting purposes should be abandoned, owing to the relative feebleness and uncertainty of its action.—*Med. Times and Gaz.*, July 29, 1876.

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Obituary Record.—Died at Berlin, Germany, June 28, in his 82d year, Professor **Christian G. Ehrenberg**, the celebrated Naturalist, well known by his important researches on infusoria.

—— at Manchester, England, July 10, 1876, Sir **James L. Bardsley**, Knt., M.D., F.R.C.P., aged 75 years. Dr. Bardsley contributed some excellent essays to the Cyclopedia of Practical Medicine, and was distinguished for his strong common sense and good judgment.

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We have Leishman and Playfair—text-books of the best kind—and we may congratulate those who teach, those who practise and those who are learning the science and practice of obstetric medicine, that we possess two manuals which fairly represent the actual state of our knowledge, that may be generally trusted for the information they contain, and for the judgment with which it is set forth. Both works are written with considerable ability. The style of Leishman is graceful, clear, orderly, and flowing. It is most pleasant reading. Dr. Playfair's capacity for seizing a subject and placing it in a clear light before the reader is conspicuous.—*Brit. and For. Med.-Chir. Rev.*, July, 1876.

CARTER ON THE EYE.

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It is with great pleasure that we can endorse the work as a most valuable contribution to practical ophthalmology. Mr. Carter never deviates from the end he has in view, and presents the subject in a clear and concise manner, easy of comprehension, and hence the more valuable.—*N. Y. Med. Record*, Oct. 23, 1875.

This is a truly original work, embodying the results of a long and large experience in one of the best hospitals in the world. It is not written expressly for oculists, but is adapted to the profession in general.—*Pacific Med. and Surgical Journ.*, Nov. 1875.

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VOL. XXXIV. OCTOBER, 1876. No. 406.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

International Medical Congress of 1876.—The International Medical Congress of 1876, which convened in Philadelphia on the 4th of September, was the most distinguished medical gathering ever assembled on this continent. It was composed of 447 delegates. Of these 71 were foreigners, representing England, Ireland, Scotland, Belgium, Denmark, Prussia, Austria, Norway, Finland, Russia, Australia, Japan, the Argentine Republic, Cuba, Mexico, Canada; and the remainder were from the United States.*

Of the delegates, it may be said that they were in every respect representative men, being the leaders of the profession of the districts or countries from whence they came, and some were the official representatives of their governments.

Among the distinguished foreigners who were present, the following may be mentioned: Mr. William Adams, President of the Medical Society of London; Dr. Rob't Barnes, Obstetric Phys. to St. George's Hospital, London; Dr. Gregorio Barroeta, San Luis Potosi, Mexico; Dr. T. Lauder Brunton, London, editor of *The Practitioner;* Mr. R. Brudenell Carter, Ophthalmic Surgeon to St. George's Hospital, London; Mr. Richard Davy, Hon. Sec. of Medical Society of London; Dr. Pierre Debaisieux, Prof. in University of Louvain; S. Engelsted, M.D., Physician in Chief of Copenhagen Hospital; J. A. Estlander, of Helsingfors, Finland; Dr. M. W. C. Gori, of Amsterdam; Dr. J. A. Grant, of Ottawa; Edmund Hansen, M.D., President of Medical Society of Copenhagen; Dr. Wm. H. Hingston, Mayor of Montreal; Prof. Johan Hjort, of Christiania, Norway; Dr. Edward M. Hodder, Toronto; Dr. R. P. Howard, Montreal; Dr. R. F. Hudson, of Ballarat, Australia; Prof. Hueter, of Griefswald; T. Ishigouro, Tokio, Japan; Dr. C. Lange, Lecturer on Pathological Anatomy in University of Copenhagen; Mr. Joseph Lister, Prof. of Surgery in Univ. of Edinburgh; Dr. Mareas de J. Melero, Havana; H. Miyake, Prof. of Pathology in Med. Col. of Tokio, Japan; S. Nagayo, Director of Med. Col. of Tokio, Japan; Dr. G. Rawson, Buenos Ayres; D. Argyll Robertson, M.D., Edinburgh; Dr. A. M. Rosebrugh, Toronto; M. Rudnew, Prof. of Path. Anat. in Medico-Chirurg. Academy, St. Petersburg; Dr. Leopold Servais, Antwerp; Dr. Alex. R. Simpson, Prof. of Obstetrics in Univ. of Edinburgh; Dr. James Thorburn, Toronto; Dr. Edward H. Trenholme, Montreal; Mr. Jolliffe Tufnell, President of Royal College of Surgeons, Ireland; Dr. W. A. Koukol de Yasnopolsky, St. Petersburg.

Of the proceedings of the Congress, the minutes herewith given show an amount of work, and of good work, accomplished, such as is unparalleled by any medical gathering previously held in this country. The addresses before the Congress in

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general meeting were admirable résumés of the progress of medicine in America during the past century, and the papers read before the sections, and the discussions thereon, were of unusual merit.

The Congress met daily at 10 A.M., and at 1 adjourned to lunch provided them in the University building by the medical profession of Philadelphia; at 2 o'clock it reassembled in Sections, each Section having a room admirably suited for its purposes.

At the opening of the Congress a programme was published, giving in detail the work for each day of the week, which was faithfully adhered to. For the convenience of the delegates, a complete list of the members registered, with their residences in Philadelphia, was published daily.

On Monday evening a public reception was tendered the delegates and their ladies at the Judge's Hall, Centennial grounds. On the other evenings, the delegates were the recipients of private hospitality. On Friday evening, the Public Dinner of the Congress was given in St. George's Hall. About 170 delegates were present. Prof. Gross presided, supported on his right by Prof. Lister, of the University of Edinburgh, and General Hawley, President of the United States Centennial Commission, and on his left by His Excellency the Governor of Pennsylvania, and Mr. Wm. Adams, President of the Medical Society of London.

On Saturday, Sept. 11, at noon, after the passage of a number of complimentary and congratulatory resolutions, the Congress was adjourned without day. Thus ended a meeting which will be long and pleasantly remembered by those who participated in it, and whose beneficial influence on American medicine will be perceived for many years to come.

Such widespread interest attaches to the proceedings of this Congress that we have devoted our entire number to it, to the crowding out of the usual sixteen pages of Gosselin's Clinical Lectures on Surgery.

International Medical Congress, Philadelphia, 1876. *Report of Proceedings.*

Sept. 4. *General Meeting.* At noon, in the Hall of the University of Pennsylvania, in the presence of a large and distinguished audience, and after the invocation of divine blessing by the Right Rev. Wm. Bacon Stevens, M.D., D.D., LL.D., Bishop of Pennsylvania, the International Medical Congress of 1876 was called to order by Samuel D. Gross, M.D., LL.D., D.C.L. Oxon., President of the Centennial Medical Commission, in the following words:—

My colleagues have confided to me, as the President of the Centennial Medical Commission, the agreeable and honourable duty of opening this International Medical Congress, so long the object of their solicitude and earnest labour. In their name, then, as well as my own and that of the entire medical profession, whose great heart this day throbs in unison with ours, I extend to you our right hand, and bid you a thrice cordial welcome to the City of Brotherly Love. The occasion which has brought us together this morning is one of no ordinary kind; it is one also which has been long and, I may say, anxiously anticipated. It might, perhaps, seem ungracious if I were to tell you how much time and labour have been bestowed by the Commission through its Committee of Arrangements upon the organization of the Congress; how often they met to devise plans and to interchange views; how earnestly and thoughtfully they performed their works: in a word, how faithfully and conscientiously they discharged the great trust confided to them by the different medical bodies of the City and County of Philadelphia, in which the Congress originated nearly two years ago. * * *

It is at all times a source of gratification to welcome friends, especially when they are united by the bonds of a common brotherhood, or an identity of interest; but on this occasion, so pregnant with important events, the feeling is vastly heightened by the fact that we have assembled around us brethren not only from every section of this great continent, but from various foreign climes—from Europe, the far East, from Japan and China, the Islands of the Pacific, South America, Mexico, the West Indies, and I had almost said, from every country in the world. * * * * * *

Men laying aside for a while their ordinary pursuits, crossing vast continents and perilous seas, congregating to unite with us in celebrating our first Medical Centennial, in interchanging cordial salutations, in deliberating upon the best means of promoting the holiest and dearest interests of our profession, and in laying their contributions, the accumulations of years of study and observation, upon a common altar for the common good! In its wide range, the present Congress is without a parallel. Similar bodies have repeatedly met, but none on so grand a scale or with such a cosmopolitan outlook. * * * * * *

We are upon the threshold of a new century. One hundred years have passed away since the grand old bell upon Independence Hall announced to the world the birth of a new nation, and liberty not only to our own citizens but to all peoples of the earth. The century that has just elapsed was the most wonderful in all that pertains to human progress, to discovery, to invention, to improvement, to refinement, and to intellectual culture; in a word, to all that ennobles and exalts human nature in its various aspects and phases, that has been vouchsafed to man since God said, "Let there be light." The science of medicine has been completely revolutionized within our own day. The saying, "Old things have passed away, behold all things are new," has literally been fulfilled. The microscope, chemical analysis, clinical observation, and experiments upon the inferior animals, are leading on the medical mind with wondrous velocity in the pursuit of knowledge, and adding daily new facts to our stock of information far beyond what the wildest fancy could have conceived of even a third of a century ago. Dogmatism, once so dominant in the schools, has ceased to exist, and no unacknowledged theories are any longer received by the scientist. Facts, resting upon the broad basis of observation and experiment, repeated and varied in a thousand ways, alone are relied upon as worthy of acceptance and as safe guides in practice. Hippocratic medicine is the order of the day. Everything bows before its divine behests.

In every corner of the habitable globe penetrated by the light of civilization, busy, active minds, endowed with high culture, and actuated by the noblest resolves, are at work, exploring the mysteries of disease, and devising means or methods of treatment for the relief of suffering and the prolongation of life. The busy bee was never more industriously engaged in gathering honey from the flower of the field than the modern physician is in gathering knowledge at the bedside of the sick, and garnering it for future use. Much of what is considered by many as established must be reviewed in the light of modern science; new avenues must be opened, and the ball, composed of myriads of threads more delicately formed than any ever spun by Penelope, must be pushed onward and upward by the united efforts of the medical profession in all parts of the world. How far the Centennial International Congress shall promote these desirable objects time alone can determine. It may safely be predicted that, if it do not fulfil all the promises of hope that have been formed of it, it will accomplish a vast deal of useful work, and thus afford the world an earnest of its interest in the advancement of scientific medicine and in international unity. Science can have no higher mission than that of strengthening the bonds and securing the co-operation of its votaries in various parts of the globe, assembled to deliberate upon everything calculated to promote its holiest interests.

And now that the labour of the Centennial Medical Commission is completed, it only remains for the Congress, which I now declare open, to perfect its organization by the election of its own officers.

The following committee of thirteen was then appointed to nominate officers for the Congress, Mr. Wm. Adams, of London, Prof. Engelsted, of Copenhagen; Prof. Hueter, of Griefswald; Prof. Rudnew, of St. Petersburg; Dr. J. A. Grant, of Ottawa; Dr. Henry I. Bowditch, of Boston; Dr. L. A. Dugas, of Augusta, Ga.; Dr. J. T. Hodgen, of St. Louis; Dr. Christopher Johnston, of Baltimore; Dr. Austin Flint, of New York; Dr. W. S. W. Ruschenberger, of the U. S. Navy; Dr. Joseph R. Smith, of the U. S. Army, and Dr. Edwin M. Snow, of Providence.

The "Address in Medicine" was then

delivered by Austin Flint, M.D., Prof. of Practice of Medicine in Bellevue Hospital Medical College, New York. In it the history of medicine and medical progress in the United States during the past century was studied from the philosophical standpoint of the agencies concerned in originating and modifying past events.

Referring to the influence exerted upon medical progress by medical journalism, Dr. Flint said the American Journal of the Medical Sciences, continued up to the present time, under the same title, issued by the several successors of the first publishers, Lea & Carey, for fifty years under the editorship of Isaac Hays, has had a powerful influence on the progress of medicine in this country. This influence has been exerted not less by its original communications than by its reviews, notices, and general intelligence. Without any disparagement of the numerous able and useful periodicals published during the last half century, may we not with a feeling of pride refer especially to a journal which, with such a history, is now the oldest living representative of medical periodical literature, and which has probably a circulation larger than that of any other in Europe or America?

The Committee on Nominations presented the following nominations as part of their report:—

President—S. D. Gross, M.D., LL.D., D.C.L. Oxon., Philadelphia.

Vice-Presidents—Dr. Paul F. Eve, Tennessee; Mr. Jolliffe Tufnell, Dublin; Dr. W. L. Atlee, Philadelphia; Dr. C. Lange, Copenhagen; Dr. T. G. Richardson, New Orleans; Dr. W. H. Hingston, Montreal; Dr. J. P. White, Buffalo; Dr. H. Miyake, Japan; Prof. N. R. Smith, Baltimore; Prof. M. Rudnew, St. Petersburg; Dr. J. M. Toner, Washington, D. C.; Prof. Hueter, Griefswald; Dr. J. B. Johnson, St. Louis; Dr. F. Semeleder, Vienna; Dr. Hunter McGuire, Virginia; Dr. Johan Hjort, Christiania, Norway; Dr. G. L. Collins, R. I.; Dr. R. F. Hudson, Australia; Dr. H. Gibbons, California; Dr. Pierre De Baisieux, Belgium; Dr. N. S. Davis, Chicago; Mr. William Adams, London; Dr. L. A. Dugas, Georgia; Prof. Simpson, Edinburgh; Dr. J. K. Bartlett, Wis.

Honorary Vice-Presidents — Surgeon-General Barnes, U. S. A.; Surgeon-General Beale, U. S. N.

Secretary-General—Dr. I. Minis Hays, Philadelphia.

Secretaries of Meeting—Drs. William B. Atkinson, R. J. Dunglison, R. A. Cleemann, W. W. Keen, R. M. Bertolet.

Section of Medicine—President, Prof. Alfred Stillé, Philadelphia; Secretary, Dr. J. Ewing Mears, Philadelphia.

Biology—President, Prof. J. C. Dalton, New York; Secretary, Dr. James Tyson, Philadelphia.

Surgery—President, Professor Joseph Lister, Edinburgh; Secretary, Dr. J. H. Packard, Philadelphia.

Dermatology and Syphilology — President, Dr. J. C. White, Boston; Secretary, Dr. A. Van Harlingen, Philadelphia.

Obstetrics — President, Prof. Robert Barnes, London; Secretary, Dr. William Goodell, Philadelphia.

Ophthalmology — President, Dr. R. Brudenell Carter, London; Secretary, Dr. John Green, St. Louis.

Otology — President, Dr. Clarence J. Blake, Boston; Secretary, Dr. H. N. Spencer, St. Louis.

Sanitary Science—President, Dr. Stephen Smith, New York; Secretary, Dr. E. M. Hunt, New Jersey.

Mental Diseases—President, Dr. J. P. Gray, Utica; Secretary, Dr. W. Kempster, Wisconsin.

The report was accepted, and the nominees were unanimously elected.

Dr. Gross, on taking the Presidential Chair, thanked the Congress for the honour conferred on him, and said that no other would be dearer to him during the remainder of his life than that of presiding over their deliberations. He considered it was an honour not solely bestowed on him, but as a tribute to the profession of Philadelphia, who had been so instrumental in organizing this Congress. To preside over such a body, he said, is an honour of no ordinary kind.

At 3 P. M., after luncheon, the Congress met in Sections.

SECTION I. *Medicine.*—The subject assigned for discussion was "Typho-malarial Fever: Is it a Special Type of Fever?" and was introduced by Surgeon J. J. Woodward, U. S. Army.

Dr. Woodward made some preliminary remarks on the mortality of armies from disease, with comments on the comparison recently drawn by Professor Virchow between the mortality of the United States armies during the late civil war and that of the German armies during the war with France.

He then referred to the fatality of camp fevers during the American civil war, and to the general belief among medical officers early in the war that these fevers represented a "new type of disease."

The history of the introduction of the term typho-malarial fever was then given, and the proposition submitted that whenever great armies campaign in malarial regions the prevalent fevers are hybrids, between malarial fevers and some form of typhus. Historical illustrations were drawn from (*a*) the siege of Naples, 1528; (*b*) the Hungarian campaigns, from 1526 to 1788; (*c*) the morbus mucosus of Roederer and Wagler; (*d*) the Walchern expedition of 1809; (*e*) Virchow's comments on the fevers of the German army in France.

Dr. Woodward then remarked on the distribution of malarial fevers and of typhoid fever in the United States, and on their relation to season of year; on the substitution of malarial fevers in particular regions, or at particular times, by typhoid; on the early recognition of hybrid forms by Drake; and on the recognition of similar hybrids by European authors as well as by Americans.

The author then referred to the typho-malarial fever of the civil war. This term, he said, was never meant to represent a specific type of fever, but intended to designate all the many-faced brood of hybrid forms resulting from the combined influence of the causes of malarial fevers and of enteric fever. He then sketched the symptoms and pathological anatomy, and referred to the two great group of cases: those in which the malarial element predominates, and those in which the typhoid element predominates; and to the scorbutic taint as a complication of either group during the civil war.

After considerable discussion, the Section adopted as its opinion the following conclusion: Typho-malarial fever is not a special or distinct type of disease, but the term may be conveniently supplied to the compound forms of fever which result from the combined influence of the causes of the malarial fevers and of typhoid fever.

Section II. *Biology.* — Christopher Johnston, M.D., Prof. of Surgery in the University of Maryland, opened the discussion on the "Microscopy of the Blood." He referred to the original source of blood in vertebrates; elements of blood in vertebrates; the normal elements having *form* exclusively considered, as regarded from two points of view: *a*, that of anatomy and physiology; and *b*, that of medical jurisprudence; genesis of corpuscles; form of coloured corpuscles and their structure; leucocytes; size of coloured corpuscles; their enumeration; the coloured blood corpuscles in medical jurisprudence. The paper was descriptive, and no conclusions were presented.

Section III. *Surgery.*—Dr. John T. Hodgen, Prof. of Surgery in St. Louis Medical College, opened the discussion on "Antiseptic Surgery," and laid down the following propositions:—

I. Putrefaction may and does occur in the solids and liquids of the body both with and without the direct contact of germs borne in the air or water.

II. Putrefaction of the solids and liquids of an open wound may in many cases be prevented if the contact of living germs with the surface is not permitted, or by destroying their vitality after contact with it.

III. It is possible that the living solids and liquids of the body may be so altered that they shall not furnish the conditions necessary to putrefaction.

IV. Practically, the conditions to be met in preventing putrefaction are so difficult that in many cases it is impossible to comply with them. Yet, even partial success is eminently worthy of our best efforts.

This subject led to a very animated debate, which consumed the entire afternoon, and was adjourned to the next day.

Section IV. *Dermatology and Syphilology.*—The discussion on the "Variations in Type and in Prevalence of Diseases of the Skin in Different Countries of Equal Civilization" was introduced by James C. White, M.D., Prof. of Dermatology in Harvard University. The Section adopted the following conclusions on the subject:—

1. Certain obscure affections, the etiology of which is little if at all understood, even in those parts of Europe to which they are mostly confined, may be regarded as practically non-existent among us—of such are *prurigo*, *pellagra*, and *lichen exudativus rubra*.

2. Certain diseases, directly connected with and dependent upon poverty and habits of personal uncleanliness, are less prevalent in the United States than in those parts of Europe of which we have sufficient statistical information for comparison. Examples of this class are the *animal parasitic affections* especially.

3. Some cutaneous affections of grave character, which are dependent upon, or a part of serious constitutional disorders, are of less frequent occurrence and of milder type amongst us than in Europe in general, or those parts of it where they are endemic. *Lupus*, the *syphilodermata*, and *leprosy* are the most marked instances of this class.

4. Certain disorders of the skin, especially those of its glandular systems, and these connected more immediately with its nervous system, are apparently more prevalent with us than in Europe. The most notable examples of the former are *seborrhœa*, acne, and possibly the heat rashes; of the latter, *herpes*, *urticaria*, and *pruritus*.

In addition to the above-mentioned conclusions, the following additional proposition was adopted by the Section:—

5. The type of certain acute congestive and nervous diseases of the skin is more severe in this country than abroad.

Section V. *Obstetrics.*—Prof. Robert Barnes, of London, on taking the chair, said: I do not know how I can express myself for the very unexpected honour of being called upon to preside over this Section, one of the most important connected with this Congress. In England we recognize the value of this branch of study but there is no country that can claim superiority over America in the development of the science of the subject. Your authors and writers are acknowledged as authorities, and, as you are in the lead, it is incumbent upon you to cultivate and improve your discoveries. It is doubly incumbent upon us to cultivate the practice of obstetrics, for it lies at the very root of the race, and unless you practise those sciences which make it more effective, we are cut off at the root.

I am not as yet familiar with the order of business, and shall have to depend upon the secretary, Dr. Goodell, and may need coaching from the vice-presidents and members. I have no doubt the secretary will aid me as to the names of those who take part in our discussions. That this is a great feature in the Congress no one can doubt. I was asked why I did not attend a congress in St. Petersburg, which might be called a great centre. I preferred to come here, and yet it seems singular to leave the centre and come to what we might call the outside. It is no slight task to spend three weeks of one's holiday on the stormy ocean; but our assembly to-day is an event, it might be called an epoch, in the history of medicine. I hope to hear some interesting discussions upon topics brought before us, and have no doubt I shall go back to my home wiser than when I came.

The question for discussion was "The Causes and the Treatment of Non-Puerperal Hemorrhages of the Womb," and it was introduced by William H. Byford, M.D., Professor of Obstetrics in Chicago Medical College.

The Reporter approached a sequential classification by showing—

(*a*) That the uterus is prone to hemorrhage, because of the conditions connected with menstruation;

(*b*) That the causes of metrorrhagia act by aggravating these conditions;

(*c*) That these causes sometimes have their origin in the nervous system, and sometimes in the vascular;

(*d*) That of the latter causes some operate by increasing the flow of blood through the uterine vessels, while others effect the same results by retarding the current of blood in them.

The mode of treatment advocated consists—(*a*) In removing the causes, and (*b*) in surgical, mechanical, and medicinal means to check the flow in great emergencies.

SECTION VI. *Ophthalmology.*—Henry W. Williams, M.D., Professor of Ophthalmology in Harvard University, introduced for discussion "The Comparative Value of Caustics and of Astringents in the Treatment of Diseases of the Conjunctiva, and the Best Mode of applying them."

He spoke of affections of the conjunctiva in which neither caustics nor astringents are indicated; of the various forms of conjunctivitis, and the extent in which caustics or astringents may be usefully applied; of the modes of applying these remedies to best advantage; and of complications—in which the conjunctivitis is the result of other morbid processes—or in which the existing morbid conditions are the consequence of previous conjunctivitis, with the treatment of such complications.

The conclusions offered by the Reporter were, after slight amendment, adopted by the Section:—

1. In a considerable number of essentially transient affections of the conjunctiva and in pterygium or other growths, no active treatment by caustics or astringents is required.

2. When disease affects only a limited portion of the conjunctiva, as in phlyctenular inflammation, the mildest stimulating or astringent remedies are usually sufficient.

3. In the acute and chronic forms of general conjunctivitis, astringents are, as a rule, safer, as well as more efficacious than caustics, and therefore better adapted to the requirements of the general practitioner.

SECTION VII. *Otology.*—The subject for discussion, "The Importance of Treatment of Aural Diseases in their Early Stages, especially when arising from the Exanthemata," was introduced by Albert H. Buck, M.D., of New York.

His remarks were based exclusively on affections of the middle ear associated with the formation of pus; the serious nature of this form of disease, oftentimes impairing the hearing very markedly, and occasionally terminating in death.

He remarked that the anatomical relations of the middle ear afford an explanation of the serious results that may follow an acute inflammation of these parts; on the impotent nature of the means commonly employed for the relief of such an inflammation; on the great value of paracentesis of the membrana tympani as a preventive of chronic purulent inflammation of the middle ear, and all its serious consequences.

The general practitioner was urged to acquaint himself with the use of the speculum and mirror, as means of ascertaining accurately the condition of the ear.

The Section adopted the following conclusions on the subject:—

1. Chronic Otorrhœa is at the present time a very common disease, due in most cases to the want of proper treatment during the acute stage of the affection.

2. It is by no means a harmless affection.

3. It may be fairly classed as a preventable disease; at least among those who possess a healthy constitution.

4. Paracentesis of the membrana tympani, if resorted to during the first few days of the acute attack, and if not carried out too timidly, *i. e.*, if a free incision be made and not a mere prick, is almost a sure preventive of the subsequent chronic disease.

5. The profession at large, and especially the medical schools, should give the subject more earnest thought than they have in the past.

SECTION VIII. *Sanitary Science.*—The discussion on the "Present Condition of the Evidence concerning Disease-Germs" was introduced by the Reporter, Thomas E. Satterthwaite, M.D., of New York.

He first considered the (1) Vegetable Germ Theory in contradistinction from other prominent theories, especially (2) the Bioplasm Theory, and (3) the Physico-Chemical Theory.

Especial attention was directed towards the following general topics: (*a*) The agency of minute, organized particles of a vegetable nature in the production of fermentation and putrefaction; (*b*) the epidemic diseases of certain plants and animals in their relation to minute vegetable organisms; (*c*) rapid multiplication of bacteria *pari passu* with the rapid spread of disease manifestations throughout the system; (*d*) the constant ratio between the most active changes in the so-called septic diseases, such as pyæmia, erysipelas, and puerperal fever, with the numerical increase in bacteria at the points involved; (*e*) can any strictly chemical substance be a fever producer? (*f*) bacteria and disease poisons: their capacity for successfully maintaining active properties; (*g*) inoculation of bacteria in healthy tissues.

The following special topics were then considered:—

I. Bacteria: (*a*) their classification; (*b*) diagnosis; (*c*) appearances under varying conditions.

II. The poisonous fluids of infective diseases, as regards their physical properties and the solid particles contained in them.

III. The value of vacuum tube experiments.

IV. How far are either the Bioplasm or the Physico-Chemical Theories competent to explain the spread of infective diseases?

V. The poisons of special diseases, such as cholera, smallpox, the carbuncular diseases of men and animals, typhus and relapsing fevers, and diphtheria, in their relations to minute organisms.

The author's conclusions, after slight modification, were adopted as the opinion of the Section, as follows:—

1. That so far as inquiry has been made as to the results of the active principles in infective diseases, it is probable that in a certain number the matter is particulate or molecular in form, and in the instances named, in no sense a soluble substance.

2. That in regard to the causes of septicæmia, pyæmia, puerperal fever, erysipelas, and hospital gangrene, and in cholera, smallpox, the carbuncular diseases of men and animals, of typhoid and relapsing fevers, and diphtheria, there is not satisfactory proof that they are necessarily connected with minute vegetable organisms.

3. That the real nature of these causes is still uncertain.

A paper on the "Vital Statistics of the City of Buenos Ayres" was read in abstract by G. Rawson, M.D., of Buenos Ayres.

Section IX. *Mental Diseases.*—The first question for discussion, the "Microscopical Study of the Brain," was reported upon by Walter Kempster, M.D., Physician and Superintendent of Northern Hospital for Insane, Oshkosh, Wis.

He first gave a brief statement, outlining the progress made by recent investigators in studying the pathological histology of the brain in insanity, and the following subjects were introduced:—

(*a*) The importance of microscopic observations of the several cerebral membranes, to determine their pathological condition, and the relations that the various pathological states hold to the forms of mental aberration;

(*b*) The abnormalities in arterioles and capillaries, including the various deposits on the walls of the vessels; engorgement and its consequences; the several changes observed in the coats of the vessels; occlusion from minute thrombi; and embolism; alterations in the course of the vessels, and the effect these conditions have upon the surrounding brain tissue;

(*c*) Miliary aneurisms and miliary hemorrhages; the effect they have in the production of brain disease;

(*d*) The peri-vascular sheath, and perivascular canal, as they are found in cases of insanity, considered in their relations to adjacent brain tissue;

(*e*) The various alterations of structure and form noted in nerve cells and nerve fibres, in the several forms of insanity;

(*f*) The abnormalities in the neuroglia, and the conditions called "miliary sclerosis" and "colloid degenerations" were described, and the influence each condition has in impairing normal cerebral action was discussed;

(*g*) The various pathological conditions found in the microscopic examination of the brain in a number of cases of insanity were beautifully illustrated by means of photo-micrographs and lantern views, made from fresh and prepared specimens. The pathological states observed were considered with reference to the mental symptoms noticed during the course of the various forms of insanity.

At 8 P.M. a Public Reception was tendered the Congress by the Medical Profession of Philadelphia, in Judges' Hall, Exhibition Grounds, Fairmount Park. It was largely attended by the delegates and their ladies.

September 5th. 2d General Meeting.—The Congress met at 10 A. M. The President, Dr. S. D. Gross, in the chair.

Reports from the various sections, containing the results of their deliberations, were read and accepted.

Dr. T. G. Richardson, of New Orleans, moved that the Congress holds itself in no way responsible for the conclusions adopted by the Sections. Adopted.

Dr. N. S. Davis, of Chicago, moved that the order upon the reports from Sections be only upon their acceptance and reference for publication.

The Secretary-General read letters of greeting to the Congress from the Imperial Medical Society of St. Petersburg, Russia, and from the University of Christiania, Norway. Also a letter from Assistant-Surgeon J. S. Billings, U. S. Army, presenting a copy of the Specimen Fasciculus of the Subject Catalogue of the National Medical Library.

Dr. Austin Flint, of New York, offered the following preamble and resolutions:—

Whereas, The institution of a National Library containing all the important bibliographical and periodical publications relating to medicine and the collateral sciences, in the past and present time, is of importance, not alone to the medical profession, but to persons in other pursuits who may desire to refer to works treating of topics embraced in these departments of knowledge, and also concerns greatly the public welfare in so far as this is involved in the elevation of the standard of medical education; and

Whereas, Through the wisdom of the National Legislators of the United States Government, a medical library has been established, containing, at the present time, about 40,000 volumes, and about the same number of single pamphlets; and

Whereas, Experience has already shown the practical advantage of the present library, and, at the same time, the great need of its being made more complete by increasing at least tenfold the number of publications which it now contains; and

Whereas, In order to render such a library available for reference, especially to medical men and others residing at a distance, a catalogue wherein publications are classified after the names of authors and subjects, the scope of each publication being stated, is indispensable; and

Whereas, Such a catalogue of the National Medical Library has been prepared under the direction of the Surgeon-General of the United States Army by Assistant-Surgeon J. S. Billings, and copies of a specimen fasciculus having been forwarded for examination by the members of the International Medical Congress; therefore

Resolved, First. That the members of this International Medical Congress regard with great interest the institution of a National Medical Library, in the City of Washington, and respectfully petition the Congress of the United States to provide for additions to the number of volumes and periodical publications, until the library is made as complete as possible.

Second. That in view of the necessity of what is known as a *Catalogue raisonné* in order to render the Library properly available for reference, this International Medical Congress urges the importance of an early completion and publication of such a catalogue.

Third. That the Specimen Fasciculus of the Catalogue, which is stated to be nearly ready for the press, affords evidence of great labour and care, and the arrangements for convenience of reference it is believed will prove in all respects satisfactory.

Fourth. That those of the delegates to this International Medical Congress who are citizens of the United States, and other members of the medical profession in this country, are urged individually to exert their influence to secure the enlargement of the Library and the speedy publication of the Catalogue. Adopted.

The Committee on Nominations presented the following additional report, which was accepted, and the nominees were unanimously elected.

Committee on Publication (with power to choose its chairman and an editor)—Dr. John Ashhurst, Jr., Dr. R. J. Dunglison, Dr. William Goodell, Dr. James H. Hutchinson, Dr. Caspar Wister.

Vice-Presidents of the Sections.

Medicine—Dr. R. P. Howard, Canada; Dr. J. J. Woodward, U. S. A.

Biology—Dr. A. Flint, Jr., New York; Dr. F. W. Campbell, Canada.

Surgery—Dr. J. A. Grant, Canada; Dr. J. Ashhurst, Jr., Philadelphia.

Dermatology and Syphilology—Dr. S. Englested, Copenhagen; Dr. E. Shippen, U. S. Navy.

Obstetrics—Prof. Alex. Simpson, Edinburgh; Dr. W. H. Byford, Illinois.

Ophthalmology—Dr. William Thomson, Philadelphia; Dr. Henry W. Williams, Boston.

Otology—Dr. A. H. Buck, New York.

Sanitary Science—Dr. J. S. Billings, U. S. Army; Dr. H. B. Baker, Michigan.

Mental Diseases—Dr. I. Ray, Philadelphia; Dr. E. Grissom, North Carolina.

The address on "Hygiene and Preventive Medicine," by Henry I. Bowditch, M.D., President of the State Board of Health of Massachusetts, was then read, Vice-President Paul F. Eve, M.D., of Tennessee, in the chair. Of this address the following is a brief abstract:—

The paper stated that public hygiene, as we now understand that term, has, till within a very short time, been wofully neglected; save when, under the stimulus of some great and terrible epidemic, frantic but temporary efforts have been made to stay the plague by hygienic or by other means. Of late, however, a new and better era seems opening to our view, and State preventive medicine affords us higher hopes for all coming time. To this last, this noblest phase of public hygiene, its very gradual evolution out of the dogmatism and scepticism of the past, its present status, our duties relative thereto, and our golden hopes for its future, the writer craves the candid consideration of the Congress.

During the past three or four years there has sprung up in many parts of the country a widespread thoughtfulness about the great necessity of hygienic measures. A large majority of the States and Territories of this Union do not appreciate the duties devolving upon them to care for the health of their citizens. Of the forty-eight governments in this Union thirty-four show but little care for the health of their citizens.

With reference to public hygiene, thirty-six States reply that they are unwilling to spend money for the formation of local or State Boards of Health, and ten reply that they are willing.

To the question, Is the State willing to spend money to carry out scientific investigation as to the cause of disease? thirty answered, no; and twelve, yes.

To the question, Is the State willing to spend money to suppress noxious or offensive trades? twenty-six answered, no; and fourteen, yes.

To the question, Is the State willing to spend money to prevent the adulteration of food? twenty-three answered no, and sixteen yes.

To the inquiry, Is the State willing to spend money to prevent the cattle disease? twenty-one answered, no; and ten, yes; and to the inquiry, Is the State willing to spend money to carry on investigations tending to Public Health, or to prevent ill health? twenty-eight answered, no; and ten, yes.

Twelve only of the States have State Boards of Health, and not one has a full list of correspondents.

In but four of the States have county boards of health been established by law. Not one State has ever made a sanitary survey of its territory.

Twenty States answer that they have a law for the registration of births, deaths, and marriages, and sixteen have none.

Twenty-four States report that nothing has been done for the drainage of land,

and one cannot but recommend the example of Illinois to the consideration of her sister legislatures.

To the question, Has any law been passed looking to the irrigation of land? five answered, yes; and thirty-one, no. All the affirmative replies, except one, viz., Utah, report that it was done for agricultural purposes. In but fourteen of the States has any law been passed for introducing water into cities.

To the questions, Has any law been passed relative to the prevention of contagious diseases? 1st. Smallpox, sixteen answer, no; twenty-one, yes. 2d. Cholera, twenty-one, no; sixteen, yes. 3d. Yellow fever, twenty, no; twelve, yes. 4th. Cattle disease, twenty, no; eleven, yes.

Relative to the passage of a law regulating tenement houses for the poor, Dr. Bowditch said there are houses in this country and in Europe where the poor are obliged to reside, and where it is impossible for them to grow up except to crime, filth, and disease.

Two-thirds of the people of this Union are living utterly regardless of whether they are drinking pure water, or water impregnated with filth.

The address on "Medical Chemistry and Toxicology" was then delivered by Theodore G. Wormley, M.D., Professor of Chemistry in Sterling Medical College, Columbus, Ohio.

The *Sections* met at 2 P. M.

SECTION I. *Medicine.*—Dr. J. Lewis Smith, Physician to the New York Infant's Hospital, introduced the discussion on the question "Are Diphtheritic and Pseudo-membranous Croup Identical or Distinct Affections?"

The points made by the author were, that croup is a local malady, and that diphtheritic laryngitis is the expression or manifestation of a general malady.

He referred to the anatomical characters of the affections, and adduced evidence to show that they are identical in kind as regards the state of the larynx, but differing in degree or intensity.

He illustrated his remarks by clinical facts, which indicated their duality.

The following conclusion was adopted by the Section: That in view of the wide diversity of opinion at present existing as to the relations between diphtheria and croup, the Section on Medicine prefers to recommend the paper of Dr. J. Lewis Smith to the Congress for publication, with the expression of their opinion of its high value as an important contribution to the literature of the subject, but without the expression of any definite conclusion upon the point at issue.

SECTION II. *Biology.*—The subject for the afternoon's discussion was "The Excretory Function of the Liver," with Austin Flint, Jr., M.D., Prof. of Physiology in Bellevue Hospital Medical College, New York, as Reporter. The following conclusions of the Reporter were adopted by the Section:—

1. Cholesterin exists in health in the bile, blood, and nervous matter, also in the crystalline lens, the spleen, and meconium.

2. Cholesterin is formed for the most part in the nervous matter, from which it is passed into the blood. The blood gains cholesterin in its passage through the brain. Its formation is constant, and it is always found in the blood.

3. Cholesterin is separated from the blood by the liver, and discharged with the bile. It pre-exists in the blood, serves there no useful purpose, and, if allowed to accumulate, blood poisoning results.

4. The bile has two separate and distinct functions, one connected with nutrition, to which the so-called biliary salts, glycocholate and taurochlolate of soda, contribute; these do not exist preformed in the blood, but are products of *secretion*. The second function of the bile is *excretory*, connected with depuration or excretion; this is accomplished by the removal of the cholesterin which it obtains from the blood.

5. Normal feces do not contain cholesterin. The latter substance is represented by *stercorin*, formerly called serolin, into which it is converted in its passage down the intestine. The conversion of cholesterin into stercorin does not, however, take place when digestion is arrested or when it is not necessary, as is shown by the presence of cholesterin in its own

form in the feces during fasting, and in the meconium.

6. The difference between the two varieties of jaundice, one mild and the other severe, is dependent on obstruction of the bile-ducts in one instance, with reabsorption of the biliary colouring matters, while in the other there is retention of cholesterin in the blood in consequence of destruction of the parenchyma of the liver.

7. That condition of the blood dependent upon the presence of cholesterin in the blood is called *cholesteræmia.* It is characterized by symptoms referable to the brain, and may or may not be attended with jaundice.

8. Cholesteræmia does not occur in every disorder of the liver, because, even when a part of the organ is disorganized, there may remain a part still capable of performing the functions of excreting cholesterin.

9. In cases of simple jaundice, even when feces are decolourized, there is no accumulation of cholesterin in the blood.

10. Cholesterin bears the same relation to the liver as urea does to the kidneys.

SECTION III. *Surgery.*—The afternoon was devoted to the continuation of the discussion of the previous day on Antiseptic Surgery, the principal speaker being Mr. Joseph Lister, Prof. of Surgery in the University of Edinburgh. His remarks were illustrated by a partial demonstration of his antiseptic method.

The Section decided by vote that it was unable, in the present state of the subject, to come to any distinct conclusion in regard to the antiseptic method.

SECTION IV. *Dermatology and Syphilology.*—Question, "Are Eczema and Psoriasis Local Diseases, or are they Manifestations of Constitutional Disorders?" Reporter, L. D. Bulkley, M.D., of New York. His arguments were drawn from—

I. Nature of the eruption in constitutional disorders affecting the skin, as in the contagious fevers, syphilis, etc.

II. Nature of local diseases.

III. Microscopic anatomy of eczema and psoriasis.

IV. Clinical history of eczema and psoriasis; *a*, age; *b*, sex; *c*, location; *d*, relapses; *e*, hereditary transmission; *f*, gouty and rheumatic symptoms; *g*, urinary disturbances; *h*, bronchitis, etc.

V. Clinical history of local diseases, epithelioma, verruca, parasitic and mechanical diseases of the skin, etc.

VI. Effect of local treatment.

VII. Effect of constitutional treatment.

The conclusions offered by Dr. Bulkley and adopted by the Section are as follows:

1. Eczema and psoriasis are distinct diseases. The former is to be clearly distinguished from artificial dermatitis, and the latter from the eruptions of syphilis, scaly eczema, and leprosy.

2. Eczema and psoriasis cannot own a double causation or nature at one time local and at another constitutional; but, with other diseases, may have a twofold cause, a predisposing and an exciting.

3. Eczema and psoriasis in many of their features resemble the accepted constitutional diseases more than they do those recognized as local.

4. Eczema is most properly likened to catarrh of the mucous membranes; it is very probable that some attacks called catarrh are eczema and psoriasis of the mucous tissue.

5. Both eczema and psoriasis resemble gout and rheumatism in certain respects, and are dependent upon a somewhat similar, although as yet unknown, constitutional cause; much of the skin lesion must be looked upon as the local result or remains of the diseases.

6. There as yet exists no microscopical or physiological proof that eczema and psoriasis are the sole result of local cell disorder, either congenital or acquired, or due alone to perverted nerve action.

7. Local causes play a very important part in the etiology of eczema. They are probably inoperative in psoriasis.

8. Local treatment is often insufficient alone to remove the lesions of eczema and psoriasis, and cannot prevent or delay relapses; its success does not necessarily demonstrate the local nature of these affections.

9. Constitutional treatment, alone and singly, can cure many cases of eczema and psoriasis, and prevent or delay relapses in a certain proportion of cases;

under constitutional treatment is included every agency not properly classed among local measures.

10. The total weight of evidence and argument is that eczema and psoriasis are both manifestations of constitutional disorders and not local diseases of the skin.

There was also read in this Section an interesting paper on "Leprosy," by F. H. Enders, M.D., Government Physician to Sandwich Islands, and one entitled "What is the Disease known as Lupus," by Dr Woskrijinjky, of St. Petersburg.

SECTION V. *Obstetrics.*—The question for discussion, "The Mechanism of Natural and Artificial Labour in Narrow Pelves," was introduced by Wm. Goodell, M.D., Clinical Professor of Diseases of Women in University of Pennsylvania.

After defining a narrow pelvis, and describing the more common kinds of pelvic deformity, the following topics, regarding alone the mechanism of labour, were introduced for discussion:—

I. How does the head enter and pass the brim in the flat pelvis; and how in the generally contracted pelvis? The commonly accepted doctrine of the initial flexion of the head was contested.

II. How does the after-coming head behave in the flat pelvis, and how in the generally contracted pelvis?

III. What effect has instrumental interference on the mechanism of labour in such pelves?

IV. Has turning any mechanical advantages over the use of the forceps?

Regarding then the mechanism alone of labour in narrow pelves, to which the scope of this paper is strictly limited, the following conclusions were reached:—

1. The unaided first-coming head, and the aided after-coming head observe in a flat pelvis precisely the same general laws of engagement and of descent. Hence, version here means art *plus* nature.

2. The forceps, however, applied in a flat pelvis antagonizes more or less with the natural mechanism of labour. Hence, the forceps here means art *versus* nature.

3. The aided and the unaided first-coming head observe in a uniformly narrowed pelvis precisely the same laws of engagement and of descent. But version violates these laws. Hence, the forceps here means art *plus* nature; version, art *versus* nature.

4. That at, or above, the brim of a flat pelvis, the fronto-mastoid, or even the fronto-occipital, application of the forceps interferes less with the moulding of the head, and violates the natural mechanism of labour less than the biparietal pelvis.

5. In the flat pelvis, the vectis aids the natural mechanism of labour, and, therefore, meets the indications better than the forceps.

Dr. T K. Holmes, of Chatham, Canada, then read a paper on the "Management of Convulsions in Children depending upon a High Temperature of the Body."

Dr. Julius F. Miner, of Buffalo, read a paper on the "Enucleation of the Ovarian Cyst."

SECTION VI. *Ophthalmology.* — "Tumours of the Optic Nerve." In opening this discussion, Dr. Hermann Knapp, of New York, presented a careful analysis of all recorded cases, including those which had fallen under his own observation.

Dr. C. R. Agnew, of New York, presented a valuable paper, entitled "Contributions to the Statistics of the Conditions of the Eyes of Scholars."

SECTION VII. *Otology.*—The question "What is the best means of Testing the Hearing?" was reported upon by Dr. Charles H. Burnett, Aural Surgeon to the Presbyterian Hospital in Philadelphia.

He considered (I.) the character of the three principal tests (the watch, the tuning-fork, and speech) in use among aurists. The manner in which these tests are heard by the normal ear, and wherein the diseased ear fails to hear them.

II. Deficiencies and discrepancies in the hearing power of the diseased ear. In some cases the power to hear certain sounds in the musical scale drops out, while the power to hear others remains comparatively good.

Can disease be diagnosed by the manner in which an ear hears certain tests? If so, what will give most aid in such a search? Most probably the voice.

III. *Manner of Testing* —(*a*) The importance of isolation of the better ear, during the test, in one-sided deafness. In any case, important to know how much is heard through the air, and how much is conveyed through the bones of the head. Want of precision in this has led to great errors in diagnosis and prognosis, in cases in which the nerve is good, but in which the sound-conducting apparatus, chiefly the middle ear, has been greatly diseased.

(*b*) Consideration of what is needed for any form of test. An arbitrary sound unit may be established. Its usefulness and its objections. An apparatus might be made to give out a set of notes of fixed value. The usefulness of such an apparatus as well as its disadvantages. How well the demands of any test are met by watch, tuning-fork, and *human voice.* Conclusions favourable to the latter drawn from preceding remarks, with the recommendation of a series of test words.

SECTION VIII. *Sanitary Science.*—The discussion on the question of "Hospital Construction and Ventilation" was opened by a valuable historical paper by Dr. Stephen Smith, Prof. of Orthopædic Surgery in University of City of New York.

Dr. J. S. Billings, U. S. A., explained the preliminary plans for the Johns Hopkins Hospital, Baltimore.

SECTION IX. *Mental Diseases.* — The "Responsibility of the Insane for Criminal Acts." The following is a summary of remarks made by Dr. Isaac Ray, of Philadelphia, in opening the discussion on this subject: —

Still great differences of opinion among physicians, lawyers, and men of the world on the question how far insanity shall be admitted as an excuse for crime. Lord Hale's doctrine that partial insanity—that in which the patient is reasonable and correct on many subjects—does not necessarily exempt one from the penal consequences of crime, still shapes the decisions of English and American courts. Tests for determining what kind of partial insanity does and what does not excuse for crime are diverse, unsatisfactory, and none supported by correct scientific knowledge of insanity. Delusion has been decided to be a sufficient excuse only when the criminal act committed under its influence would have been legally justified had the delusion been true. Notwithstanding many of the insane think and act correctly to some extent, yet it is impossible to say, with any near approach to certainty in any given case, where sanity ends and insanity begins.

Two mistakes are made by lawyers in estimating the responsibility of the insane, viz.: they define the scope of the influence of the mental disorder in an arbitrary manner, unsupported by the facts of psychological science, and they regard the affective faculties as without any part in the play of disease. The latter mistake pervades the theories of the law and the judgments of those who pretend to no law. The moral like the intellectual faculties are dependent for their exercise on the brain—the larger part of the brain, probably, being devoted to this purpose. Consequently, disease of the brain must necessarily affect the manifestations of these faculties. Whether the one or the other class, or both, is affected will depend on the part of the brain diseased. Sanity supposes the integrity of all the faculties, moral as well as intellectual. If this integrity is destroyed, insanity is the result, wherever the lesion may be. Whatever faculties may be affected or not affected, apparently, responsibility is presumably impaired. It is for the party alleging the contrary to prove it. Punishment of persons admitted to be insane, for criminal acts, has been advocated for the sake of the example. No good effect can be shown by a single case in point. Patients in our hospitals are never punished; they may be deprived of a favour or privilege which they have shown themselves incapable of using properly.

Wrong as our present mode of procedure is, no change for the better seems very practicable, unless it may be that which takes the question of insanity entirely from the court and gives it to the jury as one exclusively of fact.

The Section adopted, by unanimous vote, the following conclusions: 1. There is at present a manifest tendency to hold the insane responsible for criminal acts. 2. That this tendency is unjust, unphilosophical, and contrary to the teachings of pathology, which clearly points out that insanity is but the expression of disease.

September 6th, 10 A. M. *3d General Meeting.*—Dr. Gross, President, in the chair.

Reports from the various Sections were received and accepted.

Dr. John L. Atlee, of Lancaster, Pa., moved that the Committee on Publication be instructed to send to the governor of each State and Territory, for transmission to their respective legislatures, a copy of the address of Dr. Bowditch on Hygiene and Preventive Medicine. Adopted.

On motion of Dr. Trenholme, of Montreal, each Province of the Dominion of Canada was included.

The following resolutions from the Section on Medicine were adopted:—

Resolved, That the International Medical Congress of 1876 recognizes the advantages which would accrue from the introduction of a gradual uniformity in the multiple and heterogeneous elements of physic, as posology, nomenclatures, etc., and in the means and records of medical observation.

Resolved, That in consequence this Congress authorizes the President to appoint three delegates to the International Congress of 1877, with the special mission of presenting a schedule of the means of uniformity in physic actually applicable in all countries, and another of those which could soon be made acceptable by the profession at large.

Resolved, That the said delegates be advised to invite the co-operation of the men who have already worked for the same cause at the International or National Medical or Pharmaceutical Congress of Paris, Vienna, St. Petersburg, Brussels, and Buffalo.

Under the resolution the following delegates were appointed: Henry I. Bowditch, of Boston, Dr. J. J. Woodward, of Washington, and E. Seguin, of New York.

The "Address in Surgery" was then delivered by Paul F. Eve, M.D., Prof. of Surgery in University of Nashville; Prof. Rudnew of St Petersburg, Vice President, in the chair.

After this the "Address on Medical Biography" was read by Dr. J. M. Toner, of Washington, D. C. He said: I appear before you to discharge the duty assigned me of preparing a biographical retrospect of the medical profession of the United States during the Centennial period just passed.

In glancing over the period to be embraced in this retrospect, I am struck by the paucity of really striking events which influenced the practice of medicine, and that have left special marks at the end of the first century of our national existence. Wars have generally been promotive of medical science, and our profession was no doubt much benefited by the contest for independence.

For the first quarter of a century after this armed struggle, the leading physicians and surgeons were those who had served in the army. The most notable event of this period was the occurrence of an epidemic of yellow fever, which appeared in the summer of 1793 and 1798 in nearly all our Atlantic cities. This disease tested the courage and taxed the energies and best skill of the profession, and prompted the more eminent to reduce their observations to writing and to have them published either in defence of their practice or for the laudable purpose of making contributions to medical science.

The second quarter of the Centennial period was distinguished by the introduction of vaccination, the occurrence of spotted fever, and the war of 1812. All of these were events which stimulated the profession to more extended studies and became incentives to authorship; this was especially true of the disease known as spotted fever.

The war of 1812 proved to be another great school of experience, although it was not fruitful in medical reports or publications. The aspiration which it aroused, however, in the profession, gave an impetus to the establishment of medical periodicals and the founding of medical colleges and hospitals.

In following out the plan of dividing the century into quarters, the third may be marked as noted for the discovery of anæsthesia, the epidemic of Asiatic cholera of 1832 and 1848, and the war with Mexico, as well as the discovery and the application of many new and improved methods of physical exploration in the search for disease.

The last quarter which has just closed is specially distinguished by the vast experience of the late war, which was a great school, and which has benefited the medical profession of the whole country.

After luncheon, the Congress reconvened in *Sections* at 2 P. M.

SECTION I. *Medicine.*—Dr. Roberts Bartholow, Prof. of Medicine in Medical College of Ohio, opened the discussion on the question, "Do the Conditions of Modern Life favour specially the Development of Nervous Diseases?"

The author quoted numerous references in the writings of the ancients to mental and nervous maladies, and spoke of the influence in ancient times of those conditions supposed to be most active in our day in the production of nervous maladies, viz., social excitements, political revolutions, sexual excesses, indulgence in wine.

He mentioned the recognition of nervous maladies in the sixteenth century, and said, that if in modern times an increase in nervous maladies had occurred, the result must be exhibited to a limited extent in an increased sickness and mortality rate. With the improvement in the general well-being wrought by our modern civilization, a manifest increase in longevity has occurred. With an improved hygiene, the sickness rates and the mortality from epidemics have diminished.

The supposed increase in the number of nervous diseases is more apparent than real.

The art of printing has greatly increased the diffusion of knowledge amongst men, and hence every medical fact has not only a more prominent record, but is more generally known.

In modern times, within this century especially, nervous diseases have been more accurately studied and better differentiated.

The growth of a higher humanitarian sentiment has led to a more abundant provision for the insane.

The paper was recommended by the Section for publication, but without an expression of the opinion of the Section on the question involved.

A "Contribution to the Etiology of Epilepsy" was then read by Wm. B. Neftel, M.D., of New York.

SECTION II. *Biology.*—Prof. Rudnew, of St. Petersburg, presented four papers emanating from the Institute of Normal Histology, St. Petersburg, viz.: On the Structure of the Sweat Glands in Man, the Horse, and Sheep, by Dr. Galani; On the Nerves and their Termination in the Pleuræ of the Rabbit, the Dog, and the Cat, by Dr. Lebedeff; Upon the Microscopical Anatomy of the Nervous Apparatus of the Bronchi and Lungs in the Frog, the Rabbit, and the Dog, by Dr. Jantchich; Upon the Endings of the Nerves in the Skin of Man, by Dr. Jantchich.

Dr. J. G. Richardson, of Philadelphia, also read a paper on the Occurrence of Fungous Growths in Solutions for Hypodermic Medication, and their Prevention by Salicylic Acid.

SECTION III. *Surgery.*—"The Medical and Surgical Treatment of Aneurism" was reported upon by William H. Van Buren, M.D., Professor of Surgery in Bellevue Hospital Medical College, New York. The following is a summary of the views presented:—

After a glance at the causes of aneurism and the sources of information at the command of the reporter, he enumerated the several modes of treatment at present in use, and endeavoured to estimate the remedial value and especial applicability of each.

In a given case of aneurism, he considered what method or methods, in the present state of our knowledge, promise the most safe and most certain cure.

The following mooted questions were touched upon, viz.: (*a*) Why the blood coagulates so much more promptly in some cases of aneurism than in others where conditions are apparently alike; (*b*) The value of antiseptio treatment in securing quick union of the wound after applying a carbolized catgut ligature for the cure of aneurism after the Hunterian method; (*c*) The propriety of employing the carbolized catgut ligature upon a large artery; (*d*) The value of the "constricting" ligature of silver wire; (*e*) The comparative value of rapid and slow pressure; (*f*) The value of galvano-puncture—of coagulating injections, etc.

The following conclusions, offered by Dr. Van Buren, were adopted.

1. Tufnell's treatment of aneurism, by rest, position, and restricted diet, offers a valuable resource in thoracic and abdominal aneurisms.

2. It should always be tried in innominate, subclavian, subclavio-axillary, and iliac aneurisms, before resorting to measures attended by risk to life.

3. For aneurisms of the subclavian and iliac arteries, the Hunterian operation, with our present means of preventing secondary hemorrhage, is not justifiable.

4. For reasons formally set forth by Holmes and Henry Lee, the "old operation" cannot properly be substituted for the Hunterian operation in these cases, but should be held in reserve for special cases.

5. It is the most safe and surgical resource in gluteal aneurism, if the circulation can be commanded by the hand *in secto.*

6. The mode of cure by embolism, aimed at in the method of manipulation, is a not unfrequent explanation of what is called spontaneous cure of aneurism.

7. The value of Esmarch's bandage in the treatment of aneurism is probably not fully estimated.

8. In view of the promising features presented by the cases of Levis and Bryant, in which horse-hair was introduced into an aneurismal tumour, the repetition of this operation, or the substitution for horse-hair of Lister's prepared catgut or other animal substances, may be properly tried.

Mr. Jolliffe Tufnell, of Dublin, made some interesting remarks on the treatment of aneurism.

SECTION. IV. *Dermatology and Syphilology.*—The question assigned for discussion was "The Virus of Venereal Sores; its Unity or Duality," and the reporter was Freeman J. Bumstead, M.D., late Professor of Venereal Diseases at College of Physicians and Surgeons, New York.

The author stated that three views as to the origin of venereal sores have been entertained:—

1. All venereal sores are due to a single specific virus, the virus of syphilis.

2. Some venereal sores are due to the syphilitic virus, and others to a distinct virus, known as the *chancroidal.*

3. Some venereal sores are due to the syphilitic virus, and others to the inoculation of the products of simple inflammation, in which latter case no specific virus exists.

The evidence for and against each of these suppositions, drawn from clinical experience and artificial inoculation, was then given.

The conclusions of the Reporter were adopted by the Section, with some modifications, as follows:—

1. The virus of venereal sores is dual.

2. Venereal sores may be due to the inoculation of the syphilitic virus, and also to the inoculation of products of simple inflammation.

3. These two poisons may be inoculated simultaneously.

4 (additional). The present state of science has demonstrated that suppurating inflammatory lesions resembling chancroids may be produced on various portions of the body by inoculation with simple pus from various lesions.

A paper upon the same subject by Charles R. Drysdale, M.D., Senior Physician to Metropolitan Free Hospital, was read by title.

Dr. Chas. Heitzmann, of New York, read a paper on the "Treatment of Seborrhœa."

SECTION V. *Obstetrics.*—Dr. Washington L. Atlee introduced the question of "The Treatment of Fibroid Tumours of the Uterus.".

The subject was treated mainly from the standpoint of personal experience.

Two principal divisions of the subject were stated, as:—

I. Tumours usually accompanied with hemorrhage, embracing (*a*) fibroids occupying the vaginal canal; (*b*) fibroids within the cavity of the uterus; (*c*) interstitial submucous fibroids; (*d*) interstitial fibroids proper; (*e*) recurrent fibroids.

II. Tumours usually not accompanied with hemorrhage, including (*a*) interstitial subperitoneal fibroids; (*b*) sessile peritoneal fibroids; (*c*) pedunculated peritoneal fibroid; (*d*) interstitial cervical fibroid; (*e*) myomatous degeneration of the uterus; (*f*) fibro-cysts of the uterus.

The author considered the best mode of treatment both surgical and medicinal—the removal of tumours *per vias naturales*—and by abdominal section—the propriety of extirpating a fibroid uterus by either of these methods—a consideration of the several agents which are supposed to control the growth of fibroid tumours.

A paper entitled, "The Three most Important Obstetrical Instruments," by Professor Lazarewich, of the University of Kharkoff, Russia, and a paper on "Electrolysis, especially for the Cure of Ovarian Cysts," by Frederic Semeleder, M D., late Lecturer at the University of Vienna, were read.

SECTION VI. *Ophthalmology.*—Dr. E. Williams, Prof. of Ophthalmology in Miami Med. Coll. of Cincinnati, was the Reporter on "Orbital Aneurismal Disease and Pulsating Exophthalmia: their Diagnosis and Treatment."

Dr. George C. Harlan, of Philadelphia, contributed the notes of two cases of orbital aneurism.

SECTION VII. *Otology.*—Question, "In what percentage of cases do Artificial Drum-membranes prove of Practical Advantage?" Reporter, H. N. Spencer, M.D., of St. Louis.

After reviewing the history of the artificial drum-membrane, the author considered (*a*) the condition of the ear admitting of its use; (*b*) contraindicating conditions.

He then took up (*a*) the forms of artificial drum-membranes (under which head a preference was stated for Yearsley's cotton-wool). (*b*) The offices performed functional and therapeutical.

When the conditions are the most favourable it was claimed that the cases are the fewest in number where the artificial drum-membrane will be worn, whether the reasons be objective or subjective.

The Section then adopted the conclusions of the Reporter, as follows:—

1. Of the various forms of artificial drum-membrane in use, the cotton pellet is preferable for its greater simplicity and its easier introduction, for the greater uniformity of its effect and the comparative safety in its employment.

2. It has an advantage over all other forms of artificial drum-membrane in that, additional to the functional gain which may be derived, there may be added its value as a means of treating the tympanum, and this therapeutical use of the artificial membrane has a great future in otology.

3. The continued use of the artificial drum-membrane as a means of improving the hearing is indicated in rare conditions which can only be determined by the aural surgeon.

A valuable paper on "Certain Modifications of the Ordinary Methods of treating Chronic Non-Suppurative Inflammation of the Eustachian Tubes and Middle Ear" was read by Samuel J. Jones, M.D., Prof. of Otology in Chicago Med. College.

SECTION VIII. *Sanitary Science.*—Question, "The General Subject of Quarantine, with particular reference to Cholera and Yellow Fever." Reporter, J. M. Woodworth, M.D., Supervising Surgeon-General U. S. Marine Hospital Service.

After reviewing briefly the practice of quarantine in the past, and as at present administered, the mode of propagation of cholera and yellow fever was discussed with the view of arriving, as near as possible, at what precautions are necessary and what restrictions superfluous in the administration of quarantine, which led to the principal question—the practice and methods which should be pursued to secure the greatest protection to the public health against cholera and yellow fever with the least restriction upon commerce:—

In this connection was considered (*a*) the want of prompt information to threatened ports of the shipment of passengers or goods from infected districts; (*b*) The question of time as an element in quarantine; (*c*) The value and practice of disinfection; (*d*) The importance of municipal sanitary coöperation; and (*e*) What may be gained by imparting to masters of vessels correct views of sanitary measures to be enforced by them in outbreaks of cholera or yellow fever on shipboard, etc.

The following conclusions of the Reporter were adopted by the Section:—

1. The supervision of ocean travel ought to be directed to securing good sanitary condition of vessels at all times, out of as well as in port.

2. A system of *Port Sanitation* should be adopted and administered for each country or place, separately, modified in particular cases by taking into account the liability of the port to infection, the period of incubation of the disease, the length of time consumed in the voyage, and the measures enforced by the vessel *en route*.

3. In some countries the detention of passengers and crews of ships hailing from infected ports is warranted, but for such time only as is necessary to complete the period of incubation of cholera or yellow fever, counting from the date of departure from an infected port or landing from an infected vessel; but in no instance should passengers or sailors be held for observation on board an infected vessel, and such vessel should not be detained beyond the period required for inspection and thorough disinfection and cleansing.

4. Recognizing the fact that the modifications of infectious diseases may sometimes elude the most vigilant sanitary supervision of shipping, the importance of wisely directed internal sanitary measures can scarcely be overestimated.

5. So far as America is concerned, it is desirable that prompt and authoritative information should be had of the shipment of passengers or goods from cholera and yellow fever infected districts, thereby insuring the thorough disinfection of infected articles.

6. It is believed that the endemic forms of cholera and yellow fever are the fields which give the greatest promise of satisfactory results to well-directed and energetic sanitary measures, and to this end an international sentiment should be awakened, so strong as to compel the careless and offending people to employ rational means of prevention.

SECTION IX. *Mental Diseases.*—Question, "Simulation of Insanity by the Insane." Reporter, C. H. Hughes, M.D., of St. Louis, Missouri. The following is a brief summary of his remarks:—

The feigning of insanity by the sane has been long recognized as a practical fact. The possibility of similar efforts on the part of men really insane has been ignored or forgotten. The fact that the proof of simulation possesses no real practical value, in the case of a person already adjudged to be insane, is, probably, one cause of the rareness of recorded cases.

Advanced general dementia is incompatible with simulation. Acute and general mania is also incapable of coexistence with feigning. In recovery from the latter condition, circumstances might easily give rise to simulation of a state recently passed through. Experience and observation might certainly help to an excellent imitation of a state so lately endured.

Simulation requires and implies some degree of rationality, and usually some motive. This is by no means incompatible with insanity. In the remissions of periodic mania, in certain cases of chronic general mania and certain forms of hysterical mania, and especially in affective or moral insanity without distinct intellectual impairment, simulation is perfectly possible and practicable. The existence of susceptibility to ordinary motives is recognized in the management of every insane asylum.

Striking instances of success in the simulated abandonment of delusions, so common in alienistic literature, suggest an equal facility at invention or pretence.

The criminal classes of our great cities are born and trained to deception. Simulation might very naturally be added to constitutional infirmity. Such cases probably occur oftener than is supposed. Many famous and historic cases might be most correctly characterized as compounds of simulation with actual disease

Rarely does insanity affect all the faculties alike. Among the rational acts done by the insane man simulation may happen to occur. Especially probable is it that a man recovering from mania might imitate the crazy acts recently prompted by disease if adequate motive existed.

Simulation is peculiarly practicable in those forms of insanity which involve the affective faculties, leaving the intellect comparatively untouched.

The question of responsibility in cases where simulation is mingled with actual disease is a very difficult one. The ancient legal test, "knowledge of right and wrong," is here wholly inadequate.

The motive for simulation in the insane of hysterical tendencies is often the craving for sympathy and attention. Occasionally, however, it seems to be wholly motiveless—a mere freak of disease. We should beware of inferring because of detected simulation, the non-existence of disease.

The following conclusion of the reporter was adopted as the opinion of the Section.

It is not only not impossible for the insane to simulate insanity for a purpose in any but its gravest forms of profound general mental involvement, but that they actually do simulate acts and forms of insanity for which there exists no pathological warrant that we can discover in the real disease affecting them.

At 7.30 P. M. the Congress was addressed by J. J. Woodward, M.D., Surgeon U. S. Army, on "The Medical Staff of the United States Army, and its Scientific Work."

September 7, 10 A. M. *4th General Meeting.*—The President, Dr. S. D. Gross, in the chair.

Reports from the Sections were received and accepted.

On motion of Dr. Henry I. Bowditch, of Boston, the following preamble and resolutions were adopted:—

Whereas, the work already accomplished by the officers connected with the Bureau of the Surgeon-General of the United States Army, in the establishment of a medical library, and in the preparation of its complete and unique catalogue, in the formation of an anatomical museum, from which important scientific results have already been obtained, and which have been not only a source of honour to these United States, but of value to foreign lands and wherever science is cultivated; and

Whereas, This Congress learns with regret that, owing to a lack of a sufficient clerical force and of pecuniary means, not only some of the work already in progress has been suspended, but that other work of equal value cannot be undertaken, although ample materials for the same are now lying unused in the Surgeon General's office; therefore

Resolved, That a committee of three be appointed to prepare a memorial to be presented to the Congress of the United States, at the earliest day possible, at its next session, to urge efficient support to these most important works.

Resolved, That it is desirable that said memorial be signed by the President, Vice-Presidents, and Secretary General of this body.

The President appointed Drs. Bowditch of Boston, Rudnew of St Petersburg, and N. S. Davis of Chicago, as the Committee to prepare this Memorial.

Upon motion of Dr. J. P. White, of Buffalo, N. Y., it was ordered that the printed pamphlet containing Dr. Bowditch's paper on Hygiene and Preventive Medicine be sent to the Presidents of State and Territorial Medical Societies and Sanitary Boards of the United States and the Societies and Sanitary Boards of the Dominion of Canada.

The "Address in Obstetrics" was then delivered by Theophilus Parvin, M.D., Professor of Obstetrics in College of Physicians and Surgeons of Indiana; Prof. H. Miyake, of Tokio, Japan, Vice-President, in the chair.

In his address, Dr. Parvin declared that American obstetric knowledge had its origin with the British rather than the French, and rehearsed the progress of the science in the century, and paid high tribute to Professor Wm. Potts Dewees, whom he called the father of American obstetrics.

Of the late Dr. Hugh L. Hodge, he said, few men have studied the mechanism of labour more thoroughly, none have expounded it more clearly. Generations may come and depart, until another century pours its treasures upon the race, but it is doubtful if among these will be found another work on obstetrics of greater relative merit and of more enduring value than the treatise of Dr. Hodge. He said that the improvements and advances in obstetrics have saved more lives and accomplished greater benefits to humanity than those in surgery and other operative sciences.

Anæsthesia in obstetrics must be counted one of the greatest glories of the century. Of advances in gynæcology, the author said, but only two can be considered as the greatest glories of American gynæcology, the operation for genito-urinary fistula, and that for removal of ovarian tumours. Holding these up to the world, she may with just pride exclaim, "These are my offerings to humanity and to medicine."

The "Address on Medical Jurisprudence" was then delivered by Stanford E. Chaillé, Prof. of Physiology and Path. Anat. in University of Louisiana.

He said: Medical Jurisprudence owes its power to knowledge derived from every branch of medicine, but the law determines how far this power shall be utilized in the administration of justice. Hence the development of medical jurisprudence has varied in different nations with the progress of medical science, and with the extent of its applications to the protection of property, reputation, and life. Efficiency in this legal application varies with the appreciation of medical knowledge by the rulers of a nation; and, since an adequate appreciation is limited to the educated few, and is not yet disseminated among the mass of any people, it results that laws more favourable to the culture of legal medicine are to be found in nations ruled by the educated few, than in those governed by the people.

How much of medico-legal science has been transported from Germany and France to Great Britain and the United States, would, I fear, prove offensive to Gallic and still more to Anglo-American vanity. Great Britain transmitted to this nation laws barbarously conspicuous for the absence of provisions to apply medical knowledge to the administration of justice, and Anglo-American law continues to be, in large measure, hostile to medical jurisprudence. However, British laws have done something for the science and a little for the art. For Great Britain has fostered medical education; did in 1803 found a chair of forensic medicine in one university, and has now such chairs in all its medical colleges; has by the Registration Act and other laws greatly strengthened the medical profession, and has compelled its courts to accept expert evidence only from registered and therefore educated medical men; still "the crowned republic" remains destitute, as does its democratic American offspring, of popular, hence of governmental, appreciation of the legal importance of medical knowledge, as is proved by the same lack of any system to secure the medical evidence of competent experts, as characterized its laws when surgeons were barbers and physicians were astrologers, sorcerers, and interpreters of dreams. What wonder that Germany and France began the study earlier and have prosecuted it more successfully.

The States of the Union have, for the most part, left the culture of medical science to individual enterprise, which supplies solely that which the private citizen demands—practitioners of medicine to heal the sick. The States have as yet made no demand for competent medical experts to aid the administration of justice, and have done nothing designedly for the culture of medical jurisprudence. What growth can this branch of State medicine have so long as a State does not recognize even its existence?

In the United States there are probably forty-five thousand medico-legal autopsies made annually. The services of a skilled expert at these "coroner's inquests" is of inestimable importance.

Further, our courts have annually from forty-five hundred to treble this number of criminal trials necessitating medical testimony. Whatever the number may be, it would indicate inadequately the number of citizens whose welfare is involved in the efficient application of medical knowledge to the administration of justice.

What are the methods which Anglo-American law adopts to secure in practice that "best attainable evidence" which in theory it demands? It entrusts medico-legal autopsies, which require special medical and some legal knowledge, to those having neither the one nor the other, except by accident; for these coroners—whose inexperience our law assures by constant "rotation of office"—owe their position solely to political popularity, a qualification which a competent expert is most unlikely to possess. Are these *unqualified* officials supplied with efficient aid? If so, again by accident, since the law leaves it to chance, or to the coroner, or to his still less qualified jury, to provide a medical expert; and, as is usual, accident and ignorance provide inexperience and incompetence. Could *ingenuity* devise for medico-legal autopsies any methods *more* inefficient than these, which Anglo-American laws, framed before the birth of medical jurisprudence, have barbarously perpetuated?

With the power of medical science thus crippled at the coroner's inquests, then prostituted by the partisan opinions of incompetent experts, then perverted by advocates, and at last, when emasculated of all vigor, submitted for decision to those unable to estimate its weight, what wonder that such gross misapplication of medical knowledge brings upon it that public contempt which justly belongs to methods so monstrous, and to which true medical knowledge is a helpless, pitiable, and disgusted victim.

At 2 P. M. the Congress met in *Sections*.

SECTION I. *Medicine.*—Question for discussion: "The Influence of High Altitudes on the Progress of Phthisis." Reporter, Charles Denison, M.D., of Denver, Colorado. The paper was an exceedingly elaborate one. The author considered—

I. The past history of the climatic treatment of phthisis. (*a*) The climates of high altitudes were considered by their important attributes, which were contrasted with the same qualities in less elevated health resorts; in America the elevated inland plains and "backbone" of the continent, between elevations of four and ten thousand feet, being matched with sea-side and inland resorts, below the elevation of two thousand feet.

II. *a. Temperature.*—Too much importance has been placed upon *equable temperature*, equability often entailing excessive moisture and other conditions comparatively unfavourable to the majority of consumptives. Cool dry climates are better than warm moist ones. *b. Relative Humidity.*—The injustice of the advocates of low climates in not considering this point was noted. The questions were then asked, Is the comparison of high and low altitudes by the relative humidity of each, temperature being accounted for, fair? How does altitude affect humidity both absolute and relative? The cause of low relative humidity on the eastern Rocky Mountain slope was considered. *c. Diathermacy of the Air.*—A rule, depending upon elevation, given. The conditions for the greatest benefit from the direct influence of the sun grow more favourable with increasing elevation. *d. Electric tension, Ozone, etc.*—Their increase in high altitudes, peculiar effects, and great utility. How can we best utilize atmospheric electricity? Relation of this topic to temperature and humidity. *e. Altitude.*—The subject analyzed. The utility of the changed mechanical conditions of respiration. Influence of lessened atmospheric pressure upon the circulation and animal economy.

III. To what extent does phthisis originate above the elevation of 5000 feet? Instances analyzed. Favourable conditions for preventing phthisis and lengthening the years of the naturally short-lived.

IV. In the treatment of phthisis the utility of high altitudes rests with the *adaptability* of climate to the needs of special forms and complications of the disease. Comparison of experience elsewhere. Injurious effects of great elevations, precautions, etc.

V. Relation of typical cases, with analysis; inferences and conclusions.

VI. When and how to go to the Rocky

Mountain slope: kind of life to lead; advantages in winter and summer compared. A partial recovery necessitates a permanent residence. The remedy of high altitude too long delayed in the majority of instances. Duty of physicians in this regard was then dwelt upon.

The Section voted thanks to the author, and recommended the publication of the paper, "but without an expression of the opinion of the Section on the question involved."

SECTION II. *Biology.*—"The Mechanism of Joints." Reporter, Harrison Allen, M.D., Prof. of Comp. Anat. in the Univ. of Pennsylvania.

(I.) Starting with the idea that joints are of dynamic and static values, it was shown that in most movable joints the ball and socket arrangement predominates. When the ball is supported by the socket, as at the occipito-atloid articulation, *rest* is suggested. But when the ball is suspended from the socket, as at the temporo-maxillary articulation, *motion* is suggested. He illustrated the etiology of fracture and dislocation by reference to this method of study.

(II.) It was premised that articular surfaces are of three kinds: *axial*, *actinic*, and *lateral*. The *axial* or primary surfaces are those situated upon proximal and distal ends of a bone in the line of its longitudinal axis. The *actinic* or secondary (rarely seen) are those placed in a line which is deflected from the longitudinal axis. The *lateral* or tertiary are those situated upon the sides of the shaft or body of a bone and serve for articulation with corresponding surfaces of other bones. *E.g.* The outer femoral condyle is axial, since it is placed in the line of the longitudinal axis of the femur. The internal femoral condyle is *actinic*, since its line intersects the long axis of the femur, from which it may be said to be deflected. The *lateral* facets of the metatarsal or tarsal bones serve to illustrate the lateral kind.

(III.) Axial surfaces, it is believed, are static; actinic surfaces are dynamic; while lateral surfaces have subordinate degrees of value—some of them being adventitious. The outer femoral condyle is active in extension = static; the inner femoral condyle is active in flexion = dynamic; but the lateral facets have no independent action.

(IV.) Joints are fixed or locked at extremes of flexion and extension, and are most relaxed at the intervals between these extremes. An application of these premises was made to the etiology of dislocation.

(V.) When a facet is actively employed, it enters into a combination with which the entire limb is in harmony. Hence in the study of any one facet its relations to all others of its kind, as well as to the bones, muscles, and fasciæ of its limb, become essential.

(VI.) It was shown in conclusion that a correct knowledge of the symptomatology and treatment of diseases of the joints is dependent upon a true conception of the complex nature of articular surfaces.

The conclusions of the author were accepted by the Section.

SECTION III. *Surgery.* — Question, "Treatment of Coxalgia." Reporter, Louis A Sayre, M.D., Prof. of Orthopædic Surgery in Bellevue Hosp. Med. College, New York.

The author described coxalgia, and divided the disease into three different stages, giving the symptoms in each stage, so that they can be accurately diagnosticated. He then referred to the pathological changes in the joint in the three different stages of the disease, and to the etiology or causation of the disease—

(*a*) That the disease may occur in *any* person from a sufficient exciting cause, and that it is not of necessity of scrofulous origin.

(*b*) That, instead of being a constitutional disease, arising without any exciting cause except the general taint of the system, proof was offered that it is *traumatic* in its origin almost always if not always.

He next alluded to the treatment in the different stages, and stated that proper treatment in the majority of cases will result in recovery with good or perfect motion and without deformity; and that if proper treatment has been neglected until the bone has become carious, *exsec-*

tion is *justifiable* and far preferable to the slow exfoliations of nature, giving much better results as to the usefulness of the limb, and infinitely better as to deformity of the body and *motion* of the joint.

Ths following conclusions of Dr. Sayre, after a very animated discussion, were reported to the Congress as the opinion of the Section with the statement that in conclusion No. 2, the Section does not unanimously coincide.

1. That morbus coxarius is a disease most frequently met with in early childhood, or the age of reckless indifference.

2. That it is almost always of traumatic origin, and not necessarily connected with a vitiated constitution.

3. That rest and freedom from pressure of the parts involved, while at the same time the rest of the body is allowed free exercise in the open air, and a nutritious diet, is the best treatment that has yet been devised for this disease.

4. That if this plan of treatment is adopted in the early stages of this disease the majority of cases will recover, with nearly if not quite perfect motion, and without deformity.

5. That in the advanced second stage of the disease, when absorption of the effused fluid cannot be produced, then it is better to puncture or aspirate the joint and remove its contents, than to leave it to rupture by ulceration.

6. That in the third stage of the disease when the treatment recommended in this paper has been properly applied without satisfactory improvement, but progressive caries continues, the exsection of the diseased bone is not only justifiable, but in many cases absolutely necessary.

7. That the operation of exsection of hip is easily performed, and in itself attended with little or no danger.

8. That after exsection of the hip-joint in cases of progressive caries, the recovery is much more rapid and certain, and infinitely more perfect, as to form, motion, and the usefulness of the joint and limb, than when left to the slow process of nature.

Question, "The Causes and Geographical Distribution of Calculous Diseases." Reporter, Claudius H. Mastin, M.D., of Mobile, Ala.

In treating this subject the author gave a brief notice of the varieties and constituents of calculous concretions, tracing the formation and *probable* causes of gravel in the kidney, and afterwards of stone in the bladder:

(*a*) Hereditary influences governing diathesis, with the effect of habit and mode of life upon the formation of these deposits. (*b*) Climate, food, water, and the default of exercise, as bearing upon healthy digestion and assimilation. (*c*) The influence of age, sex, race, and occupation, and of moral and physical emotions; also the mechanical and traumatic causes of these affections. (*d*) The agency of the colloids in the formation of calculi.

The author then gave a review of the manner of formation of gravel in the kidney, its passage through the ureter, and lodgment in the bladder: and an outline of the geographical sections in which calculous diseases are found to abound, with a summary of their probable causes.

Section IV. *Dermatology and Syphilology.* — Question, "The Treatment of Syphilis with Special Reference to the Constitutional Remedies appropriate to its various stages; the Duration of their Use, and the Question of their Continuous or Intermittent Employment." Reporter, E. L. Keyes, M.D., Adjunct Prof. of Surgery and Prof. of Dermatology in Bellevue Hospital Medical College, New York.

In the course of the paper the following points were taken up: (*a*) Does a mild beginning in syphilis necessarily indicate that the malady will run a mild course so that the duration of treatment may be regulated thereby? (*b*) Is the internal use of mercury debilitating? (*c*) When is mercury useful in syphilis? Has it any control over the late symptoms? (*d*) When is iodine useful in syphilis? Can it replace mercury in any stage of the disease? (*e*) Does iodine act by liberating mercury lying latent in the tissues? (*f*) Should treatment be continuous or interrupted?

A general outline of a course of internal treatment was then given.

The following propositions, slightly modified from those originally presented by the reporter, were adopted by the Section:—

Negative conclusions, views for which there would seem to be no foundation in fact.

1. Syphilis commencing mildly needs but little treatment, and does not require mercury.

2. Mercury given internally is necessarily debilitating.

3. Mercury is only useful in secondary syphilis.

4. Iodide of potassium is of considerable value in secondary syphilis.

5. Iodide of potassium is of no value unless preceded by the use of mercury.

6. Iodide of potassium acts by liberating mercury which has been lying latent.

Positive conclusions, which, in the present state of our knowledge, may be affirmed.

1. Mercury is an antidote to the syphilitic poison, and of service in controlling all its symptoms in all, even the latest stages of the disease; its power over gummata being least, and not to be relied upon.

2. Mercury in minute doses is a tonic.

3. Iodine cures certain symptoms of syphilis, but does not prevent relapses.

4. Mercury, long continued uninterruptedly, so far as practicable in small doses from the time of earliest eruption, constitutes the best treatment of syphilis.

A paper on the same subject by Dr. Charles R. Drysdale, of London, was read by title.

A paper entitled "Verrugas, a Disease peculiar to Peru," by Dr. Geo. A. Ward, of Lima, was also read by title.

SECTION V. *Obstetrics.*—Question, "The Nature, Causes, and Prevention of Puerperal Fever." Reporter, Wm. T. Lusk, M.D., Professor of Obstetrics in Bellevue Hospital Medical College, New York.

After stating that puerperal fever is a generic term, the author defined its varieties and the distinction between non-infectious and infectious forms.

The non-infectious form the result of (*a*) Traumatic injuries; (*b*) Old peritoneal adhesions; (*c*) Disregard of hygienic precautions; (*d*) Mental influences. The infectious form he stated was a septic disease, and that the local lesions were the usual though not necessary point through which the poison enters the system. He referred to the relations of bacteria to puerperal fever; the influence of erysipelas, scarlatina, diphtheria, etc., upon the puerperal state, and to atmospheric influences. As regards the causes, deductions were drawn from civil statistics, hospital statistics, and private practice, and in the prevention of the disease we must be guided by our knowledge of its causes.

A paper was then read by Dr. Simon Fitch, of New York, on "Paracentesis, Aspiration, and Transfusion."

SECTION VI. *Ophthalmology.*—Question, "Are Progressive Myopia and Posterior Staphyloma due to Hereditary Predisposition, or can they be induced by Defects of Refraction, acting through the Influence of the Ciliary Muscle?" Reporter, E. G. Loring, M.D., of New York.

The author first referred to the hereditary predisposition of myopia. (*a*) How far the law of direct transmission is influenced by the secondary law of heredity, which expresses itself in the tendency to revert to the normal standard. (*b*) How far this tendency is influenced by intermarriage of different races, change of occupation, food, and manner of living.

These topics were illustrated by a brief comparison of the statistics of foreign countries with those taken in America.

He then referred to the development of the normal eye, and its relation to the conus and posterior staphyloma, and debated whether the conus is an anatomical and congenital defect inherent in myopic eyes, and such that become myopic through hereditary tendency, or is it simply the expression of a distension of the investing membranes which may occur in any eye from various causes?

He finally considered the action of the ciliary muscle as a cause of myopia. (*a*) The anatomy of the part, and its relation to myopia. (*b*) Can the continued contraction of the ciliary muscle produce myopia, either primarily through a permanent increased curvature of the lens, or secondarily through tension and irritation of the deeper seated membranes? (*c*) A short consideration of the statistics published by various authorities in regard to spasm of the muscle. (*d*) An inquiry whether negative accommodation, even in connection with faulty refraction, can ever produce myopia and posterior staphyloma.

The following were the conclusions of the reporter:—

1. From the fact that so large a percentage of children are myopic, whose parents are not near-sighted, while the myopia increases directly with the amount of increased tension of the eyes, and from the fact that an interchange of refraction may occur, whereby an eye which is not congenitally myopic may become so in spite of hereditary tendency against it, it would seem to follow that hereditary predisposition, though undoubtedly a potent cause, is not only not the sole cause, but it is not even the predominating cause.

2. The action of the ciliary muscle, taken by itself, exerts but little influence on the production of myopia, and still less on the formation of the cone.

Of these conclusions, the first was adopted by the Section unanimously, and the second by a majority of 15 to 7.

Dr. George T. Stevens, of Albany, read a paper "On the Relations between Corneal Diseases and Refractive Lesions of the Eye."

SECTION VII. *Otology.*—Question, "What is the best Mode of Determining the Hearing of School Children; and how should Partially Deaf Children be instructed—in Mixed Classes with those who hear well, or in Separate Classes where due allowance will be made for their defective hearing?" Reporter, Clarence J. Blake, M.D., Instructor in Otology in Harvard University.

The author considered first the methods of testing the hearing, preference being given to (*a*) test with the human voice as proposed by Oskar Wolf, for classes of consonant sounds at varying distances; (*b*) tests with the watch and musical tones. In cases of defective hearing detected in school children, an examination of the condition of the ear was advised with reference to progress in defect of hearing and classification accordingly. Classification according to degree of defect in hearing, in accordance with which it is advisable either to place the child in an ordinary school or in a special class. The author then considered the diseases which most commonly cause deafness in children.

Attention was then called to that class requiring special instruction, for which preference was given to the system of visible speech or lip reading in contrast to the sign language.

The author gave a form for tabulation of examination of the ears in school children, and then proceeded to the consideration of the facilities at present afforded in common schools for the instruction of partially deaf children. He then gave an illustration of the method of instruction by visible speech.

The following conclusions of Dr. Blake were endorsed by the Section:—

1. The frequency of partial deafness in children during the period of school life renders it advisable to make some definite provision in Public School Systems for compensatory instruction.

2. Since partial deafness is a comparative term, some provisions should be made for a proper determination of the degree of disability.

3. This is best accomplished either by establishing a series of speech tests to be used by the teachers, or by instituting competent medical examination at the hands of a medical supervisor of schools.

4. Partially deaf children, when hearing is not so defective as to require special instruction in articulation and lip reading, are better taught in mixed classes with those who hear well.

5. Partially deaf children whose hearing is so defective as to interfere with the natural acquirement of articulation and to render the ear of little or no value as a medium for instruction, should be accorded the advantages of special instruction, of which instruction, articulation and lip reading should form a part.

SECTION VIII. *Sanitary Science.*—Question, "Disposal and Utilization of Sewage and Refuse." The discussion was opened by Henry Hartshorne, M.D., Prof. of Hygiene in the University of Pennsylvania.

The following conclusions which he offered were adopted by the Section:—

1. Every plan for the laying out, or extension, of a city or town, should have as an indispensable part of it, a corresponding and coextensive plan for the continuance or substitution of the natural drainage of the locality, and for the proper construction of a system of sewers.

2. The question in regard to the removal of waste and impurities from towns is not as to the maintenance of sewers, but as to whether they should be depended upon alone, or should be supplemented, more or less largely by other means of conservancy.

3. Every sewer not supplied with a sufficient flow of water to secure the transportation of its contents is a nuisance, intensifying the evils it ought to remove. Ventilation of sewers will mitigate, but not entirely correct such evils.

4. Conditions sufficient for sanitary security are afforded by the discharge of sewage at a considerable distance from a town, into the sea, or into a large and rapid river, whose water, at least for many miles below the exit of the sewers, is not used for drinking.

5. The earth-closet method of removal of excreta is, theoretically and practically, satisfactory in a sanitary aspect; the obstacles to its general adoption belonging only to economy and convenience.

A supplementary proposition, affirming that the sewage-irrigation of arable land, well under-drained, is, where practicable, the most economical method of disposal of sewage, and is free from well-grounded sanitary objections, was not concurred in by the Section, which declined to express an opinion upon that subject, as still open to investigation.

Dr. E. R. Squibb, of Brooklyn, N. Y., read a paper on a "Universal Pharmacopœia."

SECTION IX. *Mental Diseases.*—Question, "The best Provision for the Chronic Insane." Reporter, C. H. Nichols, M.D., Phys. and Sup't of Gov't Hospital for Insane, Washington. His conclusions, adopted by the Section, were as follows:—

1. That provision for the chronic insane should be made by constructing buildings in connection with the several hospitals for the insane.

2. That it is not desirable to construct institutions solely for the care of the chronic insane.

Sept. 8, 10 A. M. *5th General Meeting.*—Dr. S. D. Gross, President, in the chair.

On motion of Dr. Paul F. Eve, of Nashville, it was

Resolved, That no papers or addresses read before this body, and ordered to be printed, shall be furnished either in abstract or otherwise for publication in any journal prior to the publication of the Transactions.

Reports from Sections were received.

Dr. N. S. Davis, of Chicago, offered the following:—

Whereas, This Congress marks an era in the history of medicine in the United States of America, the addresses as delivered presenting a summary of progress in the various departments which will be of great historical value in all coming time; and

Whereas, it is highly probable that these addresses, in connection with the many very valuable papers read and discussed in the Sections, will require for their early and proper publication more funds than are at present in the hands of the Treasurer for the purpose; therefore

Resolved, That the Committee on Publication be authorized and instructed, as soon as practicable after the final adjournment of the Congress, to ascertain the probable cost of publishing the full transactions in a style appropriate for the work, and if the money on hand is found deficient, they shall address a circular letter to such American members of the Congress, asking for such additional sum, not exceeding $10 for each, of such members as will supply the deficiency; and that said committee be authorized to withhold the volume or volumes, when published, from any member who may neglect to pay the additional sum required.

Resolved, That the Committee on Publication be authorized and requested to exercise a careful and liberal discretion in preparing and revising the proceedings and reported discussions in the several Sections, for publication in the transactions of the Congress.

The "Address on Mental Hygiene" was delivered by John P. Gray, M.D., Sup't and Phys. to N. Y. State Lunatic Asylum, Utica; Hunter McGuire, M.D., of Virginia, Vice-President, in the chair.

Upon its conclusion, Lunsford P. Yandell, M.D., late Prof. of Physiology in University of Louisville, read the "Address on Medical Literature;" Dr. T. G. Richardson, of Louisiana, Vice-Presdent, in the chair.

At 2 P. M., the Congress met in Sections.

Section I. *Medicine.*—The following papers were read:—

The Treatment of Simple Ulcer of the Stomach, by Dr. H. Lebert, formerly Prof. of Clin. Med. at Zurich and at Breslau. (Translated by Charles W. Dulles, M.D., of Phila.)

Progressive Pernicious Anæmia. By R. P. Howard, M.D., of Montreal.

Alcohol in its Therapeutic Relations as a Food and a Medicine. By Ezra M. Hunt, M.D., of Metuchen, New Jersey. The following propositions of Dr. Hunt the Section affirmed and ordered them to be reported to the Congress in general meeting:—

1. Alcohol is not shown to have a definite food value by any of the methods of chemical analysis or physiological investigation.

2. Its use as a medicine is chiefly that of a cardiac stimulant, and often admits of substitution.

3. As a medicine it is not well fitted for self-prescription by the laity, and the medical profession is not accountable for such administration, or for the enormous evils resulting therefrom.

4. The purity of alcoholic liquors is not as well assured as that of articles used for medicine should be. The various mixtures when used as medicine should have definite and known composition, and should not be interchanged promiscuously.

Prof. Rudnew, of the Medico-Chirurgical Academy, St. Petersburg, read a paper on "Sclerosis of the Vessels of the Lungs."

Section III. *Surgery.* — Mr. William Adams, President of the Medical Society of London, read an interesting paper on "Subcutaneous Division of the Neck of the Thigh-Bone." The following conclusions offered by Mr. Adams were adopted by the Section.

1. That bones can be divided subcutaneously like tendons; and that the operation of completely dividing the neck of the thigh-bone by a small saw, introduced through a small subcutaneous puncture, is a well-established surgical operation, attended with very little risk.

2. That the long bones can be completely divided by the same method in any part of their length, with very little risk.

3. That in a large proportion of these cases, the healing of the wound takes place by the first intention, and that no swelling, redness, or inflammation follows. These cases of subcutaneous osteotomy proceed as favourably as subcutaneous tenotomy.

4. In some cases a little suppuration from the track of the wound, amounting only to a few drops in the day, does occur for a week or more after the operation.

5. That in a very few cases deep-seated suppuration occurs, but in only one of these, so far as at present known, has death resulted from pyæmia out of the 23 recorded cases. In one other case death was accelerated by the operation, or rather by the prolonged suppuration which followed; the patient died eight months afterwards from albuminuria and phthisis.

6. That the permanent result of the operation has hitherto generally been to correct the deformity and to obtain bony anchylosis with the limb in the straight position; but in several instances free motion has been obtained, and remained only for a few months, when it has been gradually lost. In a few cases free motion has remained for about a year, and we hope will persist through life, but time and further experience are necessary before this can be confidently stated to be a reliable result of the operation.

Dr. L. A. Dugas, Prof. of Surgery in Medical College of Georgia, then read a paper on "Penetrating Wounds of the

Abdomen; with the Suggestions of a Change of Practice in such Cases."

SECTION IV. *Dermatology and Syphilology.*—Dr. S. Engelsted, Physician in Chief of the Copenhagen Hospital, read a paper entitled "Measures to Prevent the Propagation of Venereal Diseases in Denmark." The paper was interesting and valuable. It stated very fully the laws in successful operation in Denmark, and gave statistics showing very favourable results.

A paper on the "Prevention of Syphilis," by Dr. Chas. R. Drysdale, of London, was then read.

SECTION V. *Obstetrics.*—Dr. E. H. Trenholme, Prof. of Midwifery and Diseases of Women in Bishop's College, Montreal, read a paper on "Uterine Hemorrhage." Dr. James P. White, of Buffalo, presented a paper on "Chronic Inversion of the Uterus." Dr. T. F. Rochester, of Buffalo, read a paper on "Retroversion of the Gravid Uterus."

Dr. Alex. R. Simpson, Professor of Obstetrics in the University of Edinburgh, arose, and thanking the Section for having made him one of their presiding officers, and after a few parting words, resigned the chair to Dr. W. H. Byford, of Chicago.

Dr. James P. White, of Buffalo, moved, and it was unanimously adopted, that the thanks of the Obstetric Section of the International Medical Congress of 1876 are returned to Dr. Robert Barnes, of London, and to Prof. Alex. R. Simpson, of Edinburgh, for the able manner in which they presided.

Dr. Goodell presented, for Dr. Alexander Strubell, of Dresden, a new clamp for ovariotomy.

SECTION VI. *Opthalmology.*—Dr. Dudley S. Reynolds, of Louisville, Ky., presented a "Report of One Hundred Cases of Senile Cataract."

SECTION VII. *Otology.*—Dr. Charles H. Burnett, Aural Surgeon to Presbyterian Hospital of Philadelphia, presented a paper on "Aural Vertigo with Variable Hearing."

SECTION VIII. *Sanitary Science.*—Dr. E. R. Squibb, of Brooklyn, N. Y., submitted a paper on "Metrical System of Weights and Measures," and the following resolutions offered by Dr. Squibb were adopted:—

Resolved, That the following conclusions or inferences presented in this paper be regarded as the expression of opinion of the Section, and be recommended to the Congress for confirmation.

1. That the metric system of metrology, though by no means faultless, is now by its almost universal acceptance practically inevitable; and, therefore, that all means should be used whereby it may be gradually adopted, so as to avoid, as far as possible, the abrupt shock incident to its sudden and forcible introduction in the future.

2. That the medical and pharmaceutical professions be recommended to adopt the suggestion of giving the equivalent values of the old and new systems in their writings as an easy way of rendering them familiar in use.

3. That the medical profession be urged to use their influence in having the metric system introduced into the leading colleges and schools.

Dr. J. G. Kerr, of China, then read a paper on "Medical Missions."

SECTION IX. *Mental Diseases.*—Dr. Edward C. Spityka, of New York, read a paper "On the Methods of Examination which will reveal a clear and decisive connection between the Symptoms of Insanity and the Pathological Lesions on which they depend."

At 7 P. M. the Public Dinner of the Congress was served in St. George's Hall.

Sept. 9. 10 A. M. *6th General Meeting.*—The President, Dr. Gross, in the chair.

The Secretary-General reported that 447 delegates had registered, and that the register was printed and in the hands of the delegates. Dr. Toner, of Washington, moved that the list be confirmed. Adopted.

Reports from Sections were received.

On motion of Dr. J. P. White, of Buffalo, and seconded in several complimentary speeches, the following resolutions were unanimously adopted.

Resolved, That the Centennial Medical

Commission of Philadelphia are hereby tendered the cordial thanks of this Congress for the most excellent manner in which its members have discharged the arduous duties devolved upon them, and by which our pleasure and profit have been so much enhanced.

Resolved, That the President and other officers of the International Medical Congress of 1876 are hereby tendered the cordial thanks of the Congress for the excellent manner in which they have discharged the arduous duties devolved upon them, and by which our pleasure and profit have been so much enhanced.

Resolved, That the officers and trustees of the University of Pennsylvania are hereby tendered our cordial thanks for the very liberal use of their excellent buildings for the meetings of this International Medical Congress.

Resolved, That the officers and trustees of the Jefferson Medical College are hereby tendered the cordial thanks of this Congress for the use of their lecture-room for the most interesting lecture of Dr. J. J. Woodward, U. S. A.

Resolved, That the cordial thanks of the International Medical Congress are especially due to Drs. Thomson, Wilson, and Strawbridge, and to Messrs. Henry C. Lea and J. B. Lippincott, for their generous hospitality.

On motion of Dr. Bowditch, of Boston, the following additional resolution was appended:—

Resolved, That we, a brotherhood of physicians from the North, South, East, and West of this country, hereby tender to our associates from other lands our most earnest wishes that they may have safe and happy returns to their homes, and we would suggest the hope that they will carry back many pleasant memories of this fraternal meeting, now closing, and which has been, most appropriately, held in this generous and noble city of Philadelphia.

Dr. Grant, of Ottawa, Canada, arose and stated that at a meeting of the members of the Canadian medical delegates, held yesterday, the following resolutions were adopted unanimously:—

Resolved, That the Canadian members of the International Medical Congress desire to express their sense of the great consideration and urbanity with which they have been treated by the officers and members of the Centennial Medical Commission, and beg, by this resolution, to tender their warm thanks for the same.

Resolved, That the Canadian members of the International Medical Congress most cordially join with the other members of the Congress in thanking the members, and citizens of Philadelphia, for the generous hospitality extended to its members throughout the present session.

Dr. Charles J. Hare, of London, read the following expression of congratulation from the delegates of Great Britain:—

The delegates from Great Britain to the International Medical Congress of Philadelphia beg to congratulate the President and the several committees on the complete success of the Congress, on the high value of the various addresses presented to it, and on the forward impulse which it has given to the progress of medicine in the widest sense of that word. They desire at the same time to express in the strongest and warmest terms their sense of and their thanks for the unmeasured kindness and courtesy and the unbounded hospitality with which they have been received on this Centennial occasion, and to add that they will carry back with them a most grateful recollection of that warm right hand of fellowship which has been so warmly extended to them by their brethren of the United States.

Signed on behalf of the British delegates by Chas. J.Hare, M.D. Cantab., F.R.C.P., late Professor of Clinical Medicine in University College, and Physician to University College Hospital; R. Brudenell Carter, F.R.C.S. Eng., Hunterian Professor of Surgery to the Royal College of Surgeons of England; William Adams, F.R.C.S., President of Medical Society of London.

Dr. Sayre, of New York, offered the following:—

Resolved, That this International Medical Congress request their President, Professor Gross, to sit for his portrait, and that the Committee of Publication be instructed to have the same engraved and printed in the frontispiece to the volume of the transactions. Adopted.

The Secretary-General stated that a circular had been received announcing that an International Medical Congress would be held in Geneva in September, 1877.

The "Address on Medical Education and Medical Institutions" was then delivered by N. S. Davis, Professor of Medicine in the Chicago Medical College; Dr. Henry Gibbons, of California, Vice-President, in the chair.

Dr. Davis sketched the history of medical education and of medical schools in his country during the past century, and concluded with the following peroration:—

Let us, then, in the same self-reliant, independent spirit that actuated those who founded, and with the same untiring zeal and generous emulation that characterized the host of others who have sustained and developed the medical institutions of our country thus far, endeavour to manage the high trust they have left us wisely. Let us neither be blinded by reverence for the past, nor be fretful with impatience because clearly perceived evils will not flee at our bidding, nor yet with childish weakness call on the government to do our work for us; but let us, with boldness, yet persevering steadiness of purpose, carry forward our educational organizations, both improving their adjustments and adding to their superstructure; and we shall thereby most certainly enable those who come after us, in celebrating the next Centennial Anniversary of our national progress, to review *our work* with the same pleasure and profit that we derive to-day in contemplating the works and characters of those whose names are an honour to the century which has just passed.

Upon its conclusion Dr. Gross said: Gentlemen—Before I put the question of the final adjournment of the Congress, I beg leave to say a few parting words. First and foremost, I must be permitted again to thank you for the great honour you have done me in electing me as your presiding officer. It is the last honour I can reasonably expect from my professional brethren, who have always been so kind to me in the bestowal of their favours and of their good opinion. For these courtesies I shall never cease to be grateful, for they have served to cheer me in my labours, and have been as a balm to my soul.

The International Medical Congress of 1876 is about to pass into history as a thing of the past, and, although its exercises are but at an end, its work will live and form an interesting era in our profession as marking the reunion of a great body of men in the Centennial year of American independence. We have listened to a number of valuable and instructive discourses, illustrative of the progress of American medicine and surgery; have been engaged in profitable debates affecting some of the most vital interests of society; have performed a large amount of earnest work in the Sections, have met at the festive board; have clasped hands, and have formed warm and, as I trust, lasting friendships, all without any discord, one unkind expression, or even one word of misunderstanding. Altogether we have every reason for self-congratulation. When another Centennial century shall have passed away, the men who shall then be upon the stage will not fail to commemorate our meeting, and to bless us for what has been done this week in the interests of humanity and of medical science. In dissolving this meeting, as I now do, permit me to invoke upon our labours the choicest blessings of Almighty God, and to wish each and all of you a safe return to your homes and a happy reunion with your families and friends. May we not hope that you may long, if not forever, retain pleasant memories of our meetings in this Chapel, and that in your leisure moments your minds may occasionally resort to those of us from whom you are about to separate.

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VOL. XXXIV. NOVEMBER, 1876. No. 407.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on a Case of Successful Ligation of both External Iliacs for Inguinal Aneurisms. By EBEN. WATSON, M.A., M.D., Prof. Phys. in Anderson's University, and Surgeon to Royal Infirmary, Glasgow.

GENTLEMEN: I have the pleasure of calling your attention this morning to a very rare occurrence in surgery—namely, the successful ligature of both external iliacs for inguinal aneurisms. The patient is the same Thos. M'C—— whom I introduced to your notice at the beginning of the present session. I then described to you the history and results of ligature of the *left* iliac for inguinal aneurism, performed by me on the 1st May, 1875.[1] I now show you the man cured of aneurism of the right common femoral by ligature of the *right* iliac artery, which I performed in your presence on the 19th January, 1876; that is, eight months and nineteen days after the previous operation. In Mr. Erichsen's "Surgery" you will find reference made to a similar case, in which Mr. Tait tied both iliacs successfully, at an interval of eleven months between the operations. I do not know of any other such case on record.

After the first operation M'C—— remained quite well, and was able to resume

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[1] See The Lancet of Jan. 15, 1876.

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his work as a shoemaker; but on the 17th November, 1875, he returned to the hospital complaining of violent headache, or rather of a violent pain on the right side of the head, said to be quite of a peculiar nature. Ordinary remedies had no effect on this pain, and I began to wonder if it could be due to some intracranial aneurism. I did not, however, make out any bruit; and as the man had once had syphilis, I put him upon full doses of iodide of potass, on the theory that the headache might be periostitic in its origin. Soon afterwards the pain rather suddenly ceased, and the man declared himself quite well on the 24th November.

Nevertheless, he remained in the hospital, chiefly because I wished to show him to you, and to the Medico-Chirurgical Society of Glasgow. As before, he made himself very useful in the wards, but was not allowed to do any heavy work. It was only on the 27th of December last that he told me in passing through the wards that there was an unusual beating in his right groin, as if he had another aneurism there, and on examination such turned out to be the truth. The tumour was in the site of the common femoral, just under Poupart's ligament, as large as a walnut, pulsating freely in all directions, and yielding a loud aneurismal bruit when listened to with the stethoscope. I immediately ordered rest in bed, and compression only with a sandbag, because of the tenderness of a gland which was situated close to the aneurism.

Unfortunately the patient could not endure any form of pressure. I tried the abominal compressor in several positions above the aneurism, and Signoroni's tourniquet further down. I even applied Carte's circular tourniquet below the aneurism and on the tumour itself, but all to no purpose, and the man himself begged me to tie the vessel, as I had done before on the other side. By this time the aneurism had considerably increased in size, and now measured three inches in length. The bruit was very loud, and a grating sensation was communicated to the hand when laid on the tumour, just as if the blood-current was displacing coagula in the sac as it passed through. A consultation of the surgical staff of the hospital agreed with me that ligature of the right external iliac should now be performed, and therefore, having put the man on low diet for a few days, and gently opened his bowels, I performed the operation on the 19th of January.

The limb was carefully wrapped in cotton wool and flannel, and chloroform was administered, but he went under its influence with difficulty, had frequent attacks of retching and coughing, and occasionally during the operation came partially out of the anæsthetic stupor. His condition, therefore, was not such as made the operation easy, and it also happened that, after making the ordinary incisions through the skin, aponeurosis, and muscles, I found it very difficult to separate the transversalis fascia from the peritoneum; in fact, I punctured the latter in scratching through the fascia, the unsteadiness of the patient and his not being thoroughly under the chloroform at that moment having much to do with this error. However, immediately recognizing the mishap, I closed the puncture with a single stitch of catgut, and proceeded with the operation, which I speedily completed without further difficulty. I dare say that the trial of compression on this side served to condense the areolar tissue, which is usually found loose and easily torn between the transversalis fascia and the peritoneum. The pulsation in the aneurism was at once arrested, and never for a moment returned. Its size was also greatly diminished on the ligature being tightened. I ought to mention here that the ligature was of silk, prepared as before by being drawn through melted wax and carbolic acid. It was cut short at the knot, and after the carbolic spray had been freely used, the wound was closed with stitches of silver wire, a drainage-tube of oil-silk having been inserted at the upper extremity. Next day I removed the dressings and extracted the drainage-tube, as there was no discharge at all, and not the least tenderness on pressure. There was, however, considerable flatulent distension of the abdomen, constant sickness, and occasional vomiting. His pulse was 72, and his temperature 99°. I ordered him a calomel and opium pill twice during the day, and one of colocynth and henbane at night. Nevertheless he continued to vomit frequently until next day, when his bowels were freely relieved by an enema. The abdominal distension at once disappeared, and, in fact, he was quite well.

He was kept on mild, soft diet, and had no bad symptom after the second day—in fact, after he recovered from what I believe was a bilious attack, increased by the effects of chloroform, which evidently disagreed with him both at the time of its administration and afterwards. The wound was frequently dressed, and healed rapidly without suppuration. By the 10th of February it had completely cicatrized, and the dressings were discontinued.

Six days after the operation it is noted in the journal that the blood in the aneurismal sac felt quite solid, and by the time the wound was healed its size had greatly diminished. It is now represented by a small hard mass, of a flattened form, underneath Poupart's ligament.

The patient's diet was improved, and he was allowed to sit up in bed. In doing so he seemed to have bruised or irritated a gland in the iliac region outside of the cicatrix, and it was painful for a day, but a poultice soothed the pain, and the swelling very soon entirely disappeared.

Almost all restrictions were now removed, and the patient is reported on March 4th as being out of bed most of the day. It will be noticed that in this case the wound was firmly cicatrized in twenty-two days, and the patient was well and out of bed in six weeks from the date of the operation.

I am glad to be able to show you this man to-day (7th of June), nearly six months after the second operation was performed. He has been quite well since then, and only now complains of weakness of the abdominal parietes, where the incisions were made, and where you saw a considerable bulging when he coughed. I believe that a double truss with large and flat heads will be the best remedy for this state of parts.

I also beg you to note that there is no fulness or tenderness in the site of either ligature. In both iliac regions the parts seem to be quite healthy, with the exception of the obliteration of the arteries there, which is complete.

This case therefore proves that prepared silk ligatures may be applied on the continuity of an artery, and neither cut it nor produce suppuration, for both of these ligatures still remain, I believe, around the iliac arteries where I placed them, the one thirteen months, the other six months ago. As to the exact state of these ligatures, the best information I can give you is the following: On the 15th of last January I assisted the late Dr. Dewar to tie the femoral artery with a silk ligature prepared as mine were. Unfortunately the patient, who was an old man and otherwise ill at the time of the operation, only lived for twenty-four hours. I examined the artery and the ligature carefully after death, and found that the latter had ruptured the internal and part of the middle coats of the former, the rest of the arterial wall remaining sound. The parts of the coat which had been ruptured were turned in towards the centre of the tube, and glued with lymph and clot. The ligature was buried in lymph, and, on cross section, was seen to be already intruded into by the cellular elements. I have little doubt that its fibres would have soon been further separated and encapsuled by the lymph, and thus preserved from change. Such I believe to be the state of the ligatures in my case. They are still holding the arteries, but they are, by this time, so incorporated with living tissue that they may continue there indefinitely, without causing any disturbance or irritation.

At the time when this man's case was interesting us all—namely, last winter—I made some experiments upon the durability of catgut ligatures in the living body. More perfect ones might easily be devised, and I may yet pursue the subject further; but in the mean time I shall give you the results we arrived at.

Exp. 1. Three catgut ligatures, prepared as usual for surgical purposes and of different thicknesses, were tightly tied round a piece of wood and immersed in blood freshly drawn from a man's arm.

In twenty-four hours' time no appreciable change in the ligatures had taken place. The knots on the ligatures were quite firm, and the ligatures themselves were not thinned. My notes do not contain any indication of a later inspection of the ligatures.

Exp. 2. Three similar catgut ligatures were employed, and a double knot was firmly tied on each. They were then pulled through a sinus in a man's leg, as a seton, so that the knots were embraced by the tissues and bathed in the sero-purulent discharge of the sinus. In six hours there was no appreciable difference in any of them. But in thirteen hours the ligature of smallest size had entirely liquefied and disappeared. That of medium size had become soft and diminished in thickness, so that the knot slipped on being slightly pulled; in fact, the ligature actually broke on slight traction being made on it. The third ligature, which was of the thickest catgut used in surgery, had also very much thinned; the knot on it slipped readily, but it did not break.

Exp. 3. Again three catgut ligatures, similar in all respects to those previously used, after having been knotted, were inserted in an abscess recently opened. In six hours the catgut was bleached, but not otherwise changed. In thirteen hours the ligature of smallest size was softened, and the knot did not hold, while the others were unaffected; but after twenty-four hours' residence in the pus, all were found softened, thinned, and incapable of retaining the knot.

I ought to have stated that in Exps. 2 and 3 antiseptic dressings were employed, and in neither case was the pus at all putrid.

The question now comes to be whether or not the time—less than thirteen hours—is long enough to hold an artery with a ligature for the cure of aneurism; and the practical answer which must be given is that in *some* cases it would seem to have been long enough, while in others it was not. My experiments would seem to show that if suppuration is entirely prevented, the catgut ligature will hold for twenty-four hours, or perhaps even longer; but as no surgeon can be certain of securing that condition, especially in deep wounds and in unhealthy patients, the propriety of employing catgut ligatures in such cases is rendered doubtful; whereas the successful case of ligature of both internal iliacs now before you goes far to prove the safety and the certainty of prepared silk ligatures in such cases, and the length of time which has elapsed since the operations greatly strengthens this conclusion.—*Lancet*, August 12, 1876.

HOSPITAL NOTES AND GLEANINGS.

Subcutaneous Osteotomy.—On Saturday July 15, we were attracted to the London Hospital by a notice that Mr. Maunder would perform subcutaneous section of the femur with the chisel and mallet, to correct angular deformity resulting from anchylosis after hip-joint disease. Like many of our readers, we had made ourselves acquainted with what had passed at a recent meeting of the Clinical Society (May 12, 1876), when Mr. Maunder read a paper on this subject, and exhibited patients who had been operated upon in this way; but we wished to see the operation done, and the instruments employed for the purpose. These we will now describe as we witnessed them, for the information of those surgeons who are interested in the subject. Two patients were submitted to this treatment on Saturday—one was a young girl who for about seven years had been unable to put her foot to the ground. Disease of the hip-joint had ended in fibrous anchylosis, with the thigh fixed at an angle of 118° with the trunk. Thomas's splint had been tried for several weeks with the view of gradually straightening the limb, but no improvement whatever had resulted. The other patient was a young man of fine proportions and well nourished, who had been sent up from Plymouth with the express object of undergoing the operation. Disease of the left hip-joint had supervened upon fever, and had ended in fibrous anchylosis with the leg at right angles with the trunk. Before commencing the operation, an assistant standing in front of the patient drew forwards the soft parts. Mr. Maunder then measured the distance from the top of the trochanter major to the shaft at a level immediately below the small trochanter—this spot being selected because it is the highest beyond the attachment of the numerous muscles which are inserted into the upper end of the femur. At this spot (and while the soft tissues are well drawn forwards) he inserts a double-edged knife down to and at right angles with the bone on the outer side of the limb, cuts through the periosteum, and then, before removing the knife, introduces the chisel, which is also kept at right angles to the axis of the shaft of the femur. With a light wooden mallet the chisel is driven well into the bone, then partially withdrawn, to be again driven onwards, inclined somewhat obliquely forwards, and then backwards so as to divide the bone in the rest of its thickness. While doing this the hand of another assistant is pressed upwards against the inner surface of the thigh, so as to make counter force to the direction of the pentrating chisel. Finally, the limb is gradually and carefully extended, any small portion of bone which may happen to have escaped the chisel being at the same time broken down; lastly, a straight interrupted outside splint is applied.

The chisel—a separate one for each case—used by Mr. Maunder is three-eighths of an inch in width at the cutting edge, where it is wider than elsewhere: and three inches and a half long in the shaft. The operation is attended with next to no hemorrhage, and the small wound in the soft tissues through which the chisel has been worked, becomes valvular and air-tight as soon as the tissues themselves are allowed to fall backwards into their natural position. A minute or two was the time required to complete the division of the bone in the case of the girl; in that of the man the process was longer, owing to the greater thickness and toughness of the bone. We are happy to state that up to the present time both patients are doing perfectly well.

Mr. Maunder showed to several visitors who had assembled to see the operation three cases in which it had been performed some weeks previously. All these three patients walked into the theatre—one man without the aid of stick or crutch—with limbs in nearly perpendicular positions, and with little or no lordosis. There necessarily, however, remains some deformity about and around the hip-joint. This is easily understood when it is remembered that there is anchylosis at an angle, and in some cases it has followed so-called dislocation from disease: while, as the division of the femur is made below the small trochanter, there is no attempt to correct the abnormal position of the upper extremity of the bone.

Mr. Maunder stated that in most of his cases there has been no suppuration whatever after the operation, and that it was very limited indeed in the case in which it occurred. This entirely coincides with the experience of Professor Volkman, who also has employed the chisel instead of the saw. Professor Volkman, however, used three chisels of different thicknesses to prevent the jamming and sticking fast in the deeper parts of the incision into the bone. The superficial part was divided with the stoutest, the deeper with a thinner, and the deepest with the thinnest instrument of all so that the cleft was slightly wedge-shaped. Mr. Maunder, by a modification of the form of the chisel, finds it unnecessary to use more than one instrument.—*Med. Times and Gaz.*, July 22, 1876.

—

Cases of Acute Rheumatism treated by Salicine.—The almost specific power which salicine seems to possess of arresting the course of certain cases of acute rheumatism with high temperature is exemplified in the following case, which was recently treated at this hospital:—

James A——, aged twenty-two, was admitted May 16th, into the Seamen's Hospital, Greenwich, under the care of Dr. Ralfe, on the second day of his illness, with all the symptoms of rheumatic fever. He was quite helpless from the severity of the pain in the large joints, drenched with acid perspiration; the chest and abdomen covered with sudamina; the tongue thickly coated with white fur. Pulse 120, full and bounding; temperature 104°. No cardiac complication. The patient was at once put on salicine, ten grains every second hour; to have half a grain of the acetate of morphia at night; milk diet. On the evening of admission, after six doses of salicine, the temperature had fallen to 102.8°.

May 17th. Pulse 104. Morning temperature 102.4°; evening 102.6°. Pain in elbows and wrists very severe.

18th. Pain much relieved. Morning temperature 101.4°; evening 101.8°; pulse 98.

19th. Patient expresses himself as quite relieved. Perspiration much less; tongue cleaning. Morning temperature 100.2°; evening 101°.

20th. Improvement continues. Patient says he feels quite well, his pain quite gone, and he has asked to be allowed to get up. Morning temperature 99.2°; evening 99.8; pulse 86.

21st. Patient quite convalescent. Temperature normal.

22d. Allowed up. Temperature normal.

23d. Patient very anxious to be discharged, as he says he feels "perfectly well."

25th. Patient discharged, convalescent.

Remarks.—This case well illustrates the marvellous power which salicine seems to exert in some cases of rheumatic fever. On admission the case threatened to be long and severe, the temperature was high, and all the symptoms acute, yet in four days the patient was practically convalescent. The rapidity of the cure will contrast favourably with the most favourable recorded cases under other modes of treatment, and from what we know of the history of rheumatic fever, the result can only be attributed to the salicine.—*Lancet*, July 1, 1876.

—

Three Cases of Tetanus treated by Calabar Bean.—The *Lancet* for Aug. 26, Sept. 2 and 16, contain a report of three cases of tetanus treated at St. George's Hospital by extract of Calabar bean either by internal administration or subcutaneous injection, or both combined. The first and second cases ended in recovery. That the result in these cases was due to the beneficial influence of the Calabar bean it would be useless to attempt to deny. Both patients were to all appearances rapidly getting worse until the administration of the extract of Calabar bean was begun; from that time they improved, and soon completely recovered. In the third case, although extract of Calabar bean was exhibited in large doses, and the system became distinctly affected by the drug, the patient unfortunately succumbed. The immediate cause of death was not evident, but it is worthy of note that the man seemed to breathe freely, and remained conscious up to the last.

The first and third cases were traumatic, the second idiopathic.

—

A Pulse of 21.—A remarkable instance of slow pulse is at the present time in M. Tillaux's service at the Lariboisière. The patient, a *chiffonnier*, seventy-seven years of age, came in to be treated for hydrocele, in all other respects seeming well, and jovial in his manner. It was almost by accident discovered that he had a pulse only of 21. It is regular, the two sounds of the heart and the short interval of silence that separates them occupying scarcely half a second. But the "grand silence" is extraordinarily prolonged, so as to continue nearly two seconds and a half. During this absolutely nothing is heard in the heart—not the slightest souffle. But with the first sound a very distinct souffle is heard, which, continuing during the "petit silence," terminates suddenly with the valvular clap which constitutes the second sound. The heart seems large, its apex beating more externally and lower down than in the normal state. There is some emphysema of the lungs. The pulse was counted carefully four days in succession, and the intervals were found to be perfectly equal, and the same on both sides. The patient, who entered the hospital on August 5, has had some attacks of syncope since then, and at the present time he is suffering from considerable œdema of the legs.—*Med. Times and Gaz.*, Aug. 19, 1876, from *Gaz. des Hôp.*, Aug. 12.

MEDICAL NEWS.

ORIGINAL ARTICLES.

Sponge Tents. By J. M. WARD, M.D., of Cornelia, Mo.—With a view of obviating the objections which have been advanced against the employment of these instruments, I use the common sponge tent modified by covering it lengthwise with a strip of isinglass plaster large enough to cover it from the large end to the point and back again, and wide enough to encircle some more than half of the sponge when dilated. The plaster should be wet enough to wrap smoothly over the tent, and any overlapping is no detriment to dilatation. Thus covered at the time of use it slips more readily into place, is easily retained by the cotton dressing, dilates fully, is easily removed, and is not followed by either hemorrhage, laceration, or so fetid discharges. The main causes of inflammation are obviated, and in suitable cases the only precaution is quietude of patient, and not to use the first tent so large as to require force in adjusting. I introduce them in the left lateral position, apply a cup-shaped pledget of cotton wet with glycerine, and remove all in the same position, and have never had metritis follow, and I doubt the effect of air in causing it if other precautions are taken. In chromic endometritis after dilatation the cavity is swabbed with either chromic acid and water equal parts, pure deliquesced carbolic acid, nitric acid, or tincture of iodine, and followed with the cotton glycerole to the cervix. Instead of using cotton-wool wrapped on a sound or probe as a swab, I take a piece of broom wire a foot long, bend it double from the middle, and fasten a small piece of sponge in the bight, wrap it and trim to a round ball the size of a pea. To give strength to the handle tie a small stick (crow quill size) between the free ends of the wire and up to within two and one-half inches of the sponge. Curve the wire portion between the stick and sponge, and you have a complete and effective instrument.

—

Four Children at a Birth. By HENRY H. THORPE, M.D., of Liberty Hill, Williamson County, Texas.—The following case of pregnancy has just occurred in my practice :—

On the night of the 13th of September I was called to attend Mrs. S., mother of seven children, having been delivered of twins at fourth pregnancy.

I found os fully dilated. I ruptured membrane, after which she was soon delivered of a female child weighing three pounds. I then found two presenting, one cephalic, the other breech presentation. I ruptured the membrane, and succeeded in delivering both, when I found a fourth child, having a cephalic presentation; ruptured membrane, and fourth child was delivered. All are living and are all doing well. One child weighed three pounds; two, three and a half respectively; fourth, weight four pounds. The cords had separate attachments to placenta, but within a radius of one and a half or two inches. All are female children.

—

Case of Five Children at a Birth. By JAMES F. PEARCE, M.D., of Mars Bluff, S. C.—Scilla M., a negro woman, a multipara, gave birth on the 11th of September to five children. The labour was premature by one and a half months. The children were small but perfectly developed, ten and three-quarter inches long, and weighed (estimated, I had no opportunity of weighing) about two and a half pounds each.

One female was attached to a separate placenta. One female and three male children attached by separate cords to same placenta. I would have preserved the placentæ, but they were burned immediately on account of a superstition prevalent amongst southern negroes. The mother is doing well. Four of the children died immediately; one lived several hours.

—

Sanguineous Discharge from the Vagina of an Infant aged three months. By EDWIN FARNHAM, M.D., of Cambridge, Mass.—Mrs. —— was under my care for four months previous to and during her labour. The case was a first pregnancy, and complicated by marked melancholia, and toxic convulsions occurring at intervals of about a month. The melancholia persisted up to the setting in of labour. The convulsive attacks abated in severity, and the last month of pregnancy passed without one, the patient having been put upon minute doses of strychnia and phosphorus for the three months preceding labour. Labour came on June 6th, and after continuing twenty-four hours terminated with the birth of a child, weighing (naked) eight pounds and eight ounces, in the left occipito-anterior position. There were no convulsions during labour, the last two hours of which were passed under the influence of chloroform. Ether was tried in the earlier part of labour three times unsuccessfully, producing on each occasion violent vomiting. The mother recovered rapidly and completely. The child has had no sickness, with the exception of the incident about to be detailed, up to the present time. On the 7th of September, 1876, I chanced to be in the house when the infant was brought home from its walk, and was asked by the mother to look at it, as there appeared to be some trouble. On changing the child, she found on its napkin a red spot the size of a silver half dollar. Upon examination, I discovered a few drops of a sanguineous-looking discharge oozing from the vagina. There were no marks of any injury, nor did an interrogation of the nurse throw any light upon the subject. No treatment was necessary, as the discharge subsided spontaneously in two or three hours. Neither at the time of this occurrence, nor subsequently, has there been any impairment of the general health of the infant, which, from the date of birth up to the present time, has gained one pound and eight ounces each month, and is a strong and remarkably happy and quiet child. It has never had any food but its mother's milk.

DOMESTIC INTELLIGENCE.

Cæsarean Section.—Dr. W. N. M'Coy records (*American Practitioner*, October, 1876) a curious case of this. The uterus had prolapsed while in a state of suppurative inflammation, following her previous confinement, and the vaginal cervix had become adherent within the vagina; craniotomy and delivery per vias naturales being impossible, hysterotomy was performed. A living child was delivered. The mother died thirty-two hours afterwards.

American Gynæcological Society.—The first annual meeting of this Society was held in the city of New York, on Wednesday, September 13; Fordyce Barker, M.D., President, in the Chair.

The first paper read was on Flexures of the Uterus, by Dr. Thomas Addis Emmet, of New York; it included the statistics of 2500 cases, and elicited an instructive discussion. Papers were also read by Dr. Skene, of Brooklyn, on Cicatrices of the Cervix Uteri and Vagina; and by Dr. E. W. Jenks, of Detroit, on Viburnum Prunifolium; its Uses in the Treatment of the Diseases of Women, and to prevent abortion. The viburnum was recommended as a valuable prophylactic against Abortion. Dr. Theophilus Parvin related a curious case of abnormal menstruation, in which menstruation occurred vicariously from the gum and lip.

On the 14th, the President delivered his annual address, which was followed by the reading of a paper by Dr. Robert Barnes, of London, on Some of the Relations of Pregnancy to General Pathology. Dr. T. Gaillard Thomas presented a Report of a Case of Abdominal Pregnancy treated by Gastrotomy; and Dr. Byford, of Chicago, read a valuable paper On Spontaneous and Artificial Disintegration of Fibrous Tumours of the Uterus. Dr. H. F. Campbell, of Augusta, Ga., presented a paper upon Pneumatic Self-Replacement in Dislocations of the Gravid and Non-Gravid Uterus; and Dr. Emil Noeggerath, of New York, read a paper On Latent Gonorrhœa, especially with regard to its Influence on Fertility in Women. Papers were also read by Dr. Alfred Wiltshire, of London, On Death from Uræmia in Certain Malignant Diseases of the Uterus, in which he expressed his opinion that the suppression of urine resulting in uræmia is due to the occlusion of the uterus, produced in many cases by the inflammation of surrounding lymphatics, and by

Dr. Geo. J. Engelmann, On a Menstrual Hystero-Neurosis of the Stomach, in which he narrated three cases in which the menstrual period was accompanied by attacks resembling acute gastritis and disappearing with the menstrual molimen.

Dr. Peaslee, of New York, reported the case of an epileptic on whom he had performed Battey's operation for extirpation of the ovaries: the operation resulted in fatal peritonitis.

The concluding paper was read by Dr. William Goodell, of Philadelphia. It was entitled "The Treatment of Acute Lacerations of the Female Perineum and of Lesions of the Recto-Vaginal Septum." In the former class of cases he advocated immediate operation.

Papers by the following gentlemen were read by title: Matthews Duncan, Lawson Tait, W. L. Richardson, J. R. Chadwick, J. H. Bixby, H. F. Campbell, and Robert Battey. The following officers were reelected for the ensuing year: President, Fordyce Barker, M.D.; Vice-Presidents, W. L. Atlee, M.D., of Philadelphia, and W. H. Byford, M.D., of Chicago; Secretary, J. R. Chadwick, M.D, of Boston.

The next meeting will be held in Boston in May, 1877.

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The International Otological Congress was organized on the 15th of September in the City of New York, by the election of the following officers: President, Dr. D. B. St. John Roosa, of New York; Vice-Presidents, Drs. E. L. Holmes, of Chicago, and A. H. Buck, of New York; Secretary, Dr. J. S. Prout, of Brooklyn.

The Society adjourned to meet in 1880.

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American Otological Society.—At the Ninth Annual Meeting of this Society, held in the city of New York, on the 15th of September, the following officers were elected for the ensuing year. President, C. J. Blake, M.D., of Boston; Vice-President, Albert H. Buck, M.D., of New York; Secretary and Treasurer, J. Orne Green, M.D., of Boston.

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American Public Health Association.—At the fourth annual meeting of this Association, held in Boston in the first week in October, the following officers were elected for the ensuing year: *President*, Dr. John H. Rauch, of Chicago. *Vice-Presidents*, Drs. L. H. Steiner, of Maryland, and E. M. Hunt, of New Jersey. *Secretary*, Dr. Elisha Harris, of New York.

A number of interesting papers were read, and among them one by Dr. Austin Flint on Food in its relations to Personal and Public Health, and another by Dr. Jones, of New York, on Abattoirs. In connection with the latter the Association

Resolved, That concentration of the slaughtering business in large abattoirs, located at the water side, and remote from business centres and human dwellings, provided with facilities for utilizing all portions of the animal without delay, is regarded as essential for the protection of public health, and as conducive to individual economy.

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Maine Medical Association. — At the twenty-fourth annual meeting, held at Portland June 26th, 27th, and 28th, the following officers were chosen:—

Eugene F. Sanger, M.D., of Bangor, *President;* M. A. Albee, M.D., of Union, O. A. Horr, M.D., of Lewiston, *Vice-Presidents;* C. O. Hunt, M.D., of Portland, *Secretary;* S. H. Weeks, M.D., of Portland, *Corresponding Secretary.*

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Association of Medical Superintendents of American Institutions for the Insane.—The thirtieth annual meeting of this Association was held in the city of Philadelphia on the 13th, 14th, 15th, 16th, and 17th of June last. The attendance was a large one; as usual, a considerable amount of interesting and important business was transacted, and many papers read and elaborately discussed.

The next meeting of the Association will be held in St. Louis, on the last Tuesday of May, 1877.

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American Pharmaceutical Association.—This Association held its 24th annual meeting at the Hall of the Philadelphia College of Pharmacy, on the 12th, 13th, 14th, 15th, and 16th of September. The building of the college was politely placed at the service of the Association, and every arrangement made that it was thought would contribute to the convenience of the members, and facilitate the business of the meetings.

The meeting was a very large one, and the members seem to have enjoyed themselves exceedingly.

Many interesting reports and papers were read.

The following officers were elected: *President*, Charles Bullock, of Philadelphia. *Vice-Presidents*, J. A. D. Sheppard, of Boston; G. J. Luhn, of Charleston; J. D. Wells, of Cincinnati. *Treasurer*, C. A. Tufts, of Dover, N. H. *Permanent Secretary*, John Maisch, of Philadelphia. *Reporter on the Progress of Pharmacy*, C. L. Diehl.

The next meeting will be held at Toronto, Canada, on the 4th of September, 1877.

Code of Ethics of the American Medical Association.—We mentioned in our previous number that this code had been translated into German, but omitted to state that this translation had been published in Munich. We may further add that the committee of the German Medical Association, representing fifty-three hundred members, at the meeting of that association in June last recommended the adoption of the Code by the different local societies.

The No. of the *Cincinnati Lancet and Observer* for September contains a very sensible defence of the Code of Ethics by Dr. J. R. Black, of Newark, Ohio, and there is an excellent defence of it also in an editorial in the *Detroit Review of Med. and Surg.* for September. These articles are recommended to the attention of those who have been discussing that Code under the idea that our profession is a mere trade, and its sole object is personal gain.

A Question in Ethics.—The editors of the *Pacific Medical and Surgical Journal* (Sept. 1876) very pertinently inquire, "Is there any difference, in point of ethics, between a physician in practice prescribing a proprietary medicine, and a physician, in the capacity of editor of a medical journal, publishing advertisements recommending the same?"

It must require keen optics to detect the difference.

Yellow Fever.—This disease has prevailed to a frightful extent and with terrible malignancy in Brunswick and in Savannah, Georgia. So far as we can learn, the disease seems to have been brought to Brunswick from the West Indies. It was at first, perhaps, not recognized; at all events its presence was not announced until it had spread to a great extent, and half of the population became affected. Thence the disease was taken to Savannah, its existence in the former city appearing not to have been known to the health authorities, since no quarantine was established. The sanitary condition of Savannah being extremely bad, the disease rapidly spread, and the mortality from it has been large. The usual population of Savannah is about 32,000, which was reduced by the exodus of the inhabitants to about 20,000. The number of deaths so far as we can learn has been about 1200.

Cases of the disease have also occurred in Charleston, S. C., and New Orleans, La., but the complaint has not been epidemic in either of these cities.

Bogus Diplomas.—Notwithstanding that the Legislature of Pennsylvania has annulled the charters of the colleges in Philadelphia which have been issuing bogus diplomas, and other legal measures have been taken to arrest their issue, it appears that this fraudulent business has not been entirely arrested. A large lot of such diplomas was recently received, it is said, at the custom-house in Philadelphia, from Liverpool, consigned to Dr. B. C. Buchanan, and has been seized as fraudulent. These diplomas are in blank. One set professes to be issued for attendance at the "University Hospital;" the other is that of the "Eclectic College of Pennsylvania," and has attached the signatures of certain Professors.

Health of Philadelphia.—We are happy to be able to announce that the sanitary condition of Philadelphia is, at the present time, and has been during the past summer, excellent. The weekly percentage of deaths has been materially less than that of New York, and less than that of Brooklyn, Boston, or Baltimore, or of any of our large cities. The water furnished to the Centennial grounds is drawn from the Schuylkill River, is abundant, and, as the borders of the river for a considerable distance above the source of supply are included within the Park limits, there are but very few habitations or other sources from which the water can be contaminated. The chemical analysis of the water by Dr. Chas. M. Cresson fully attests to the purity of that supplied to the Centennial grounds. We may further state, as convincing evidence of the present healthfulness of Philadelphia, that, notwithstanding its largely increased population, its absolute mortality for several weeks past has been less than that for the corresponding periods of the preceding year.

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Stevens's Triennial Prize, 1879.—This prize, established by Alexander H. Stevens, M.D., amounts to two hundred dollars. The questions for 1879 are as follows:—

I. "Bacteria and kindred organisms, in their relation to disease."

II. "Human excreta as a cause of disease; the diseases produced therefrom, and their prevention by hygienic means."

The competing essays on either of the above subjects are expected to give an account of our present knowledge, and also the results of personal investigation.

The essays must be sent in to the President of the College of Physicians and Surgeons, New York, on or before the first day of January, 1879. Each essay must be designated by a device or motto, and must be accompanied by a sealed envelope, bearing the same device or motto, and containing the name and address of the author. The envelope belonging to the successful essay will be opened, and the name of the author announced, at the Annual Commencement of the College, in March, 1879. This prize is open for universal competition.

J. C. Dalton, M.D.,
Secretary of the Committee.

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Personal. — Dr. Laurence Turnbull requests us to state, in order to prevent misapprehension, that he resigned the chairmanship of the Section on Otology, International Medical Congress, in order that the position might be filled by a gentleman from a distant city.

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Obituary Record.—Died, in Baltimore, Dr. **Richard S. Stewart**, aged 79. Dr. S. was for many years one of the most esteemed physicians in Baltimore, but retired from practice a number of years since, and became the superintendent of the Maryland Hospital for the Insane, which position he held until within a few years.

—— In Berea, Ohio, of tuberculosis, Dr. **Alexander McBride**, in the fifty-fifth year of his age.

—— In Charleston, S. C., Oct. 4, **Thos. G. Prioleau**, in the ninetieth year of his age. Dr. P. was one of the original founders of the Medical College of the State of South Carolina, and was Professor of Obstetrics until his resignation a few years ago. He was a most courteous and dignified gentleman, highly esteemed and respected, and enjoyed a large practice.

—— At Washington, D. C., Oct. 24, aged 65, **W. P. Johnston**, M.D., one of the most eminent physicians of that city.

FOREIGN INTELLIGENCE.

Alteratives.—Dr. T. Lauder Brunton says (*The Practitioner*, Sept. 1876), if we were to take the word alterative in its widest sense, it would embrace all the medicines we employ; for all of them are used for the purpose of producing some alteration or other in the bodies of those to whom they are administered. Nor is the alteration confined to them alone; it may also influence their offspring, and Buchheim very truly says that we are quite justified in calculating what the influence of a purgative, which we take to-day, will be upon the bodily and mental well-being of our great grandchildren. I know a lady who believes that ill temper in children is due to illness, and whenever any one of her own family was naughty during their childhood, she invariably administered a dose of Gregory's mixture to the offender. The practice was most successful, mind and body were purged together, the ill temper fled with the evacuation of the bowels, and a wholesome dread lest the dose should be repeated co-operated with its physical action to prevent a return of the naughty fit. Who shall say that the temper and disposition, as well as the bodily health, of this lady's children and grandchildren are not altered for the better by her judicious use of rhubarb and magnesia, and who shall deny to Gregory's mixture an honourable place among the alteratives?

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Corrosive Sublimate in Gonorrhœa.—Founding his trials on a case which he published in 1873, Dr. Bruck, of Buda-Pesth, now recommends this treatment as producing the following results: 1. In the course of six weeks, without any of the complications contingent on the use of injections, the gonorrhœa may be cured, and the means may be resorted to in the hyperæmic stage of the affection. The discharge during the first ten days is remarkably profuse, and then becomes less and less and more serous, the urethral burning being supportable, and the chordee moderate. 2. During the treatment, alcoholic drinks, strong coffee, and highly seasoned foods must be abstained from. 3. Purgatives are also to be avoided, being unnecessary during the use of the sublimate. 4. When much griping pain is produced in the stomach or intestines, the sublimate must be suspended for some days. 5. It is not to be employed when there is heart or lung disease. It is given in the form of pills, one centigramme divided into twenty pills being taken in the course of the first ten days. The next twenty pills contain two centigrammes, and are consumed in half that time, and so on.—*Med. Times and Gaz.*, Aug. 5, 1876, from *Centralblatt f. Med. Wiss.*, July 1.

Hypodermic Injections of Morphia in Obstinate Diarrhœa.—M. **Révilliod** states (*Gaz. des Hôp.*, Aug. 5) that numerous trials in Professor Vulpian's wards have shown that morphia, hypodermically used in moderate quantities, has proved a most valuable remedy in arresting diarrhœas that obstinately resist all other treatment—as, *e. g.*, in the diarrhœa of phthisis.—*Med. Times and Gaz.*, Aug. 12, 1876.

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Phenicated Camphor.—Under this title Dr. **Saulez** describes (*Bull. de Thérap.*, August 30) a combination of carbolic acid and camphor, which exerts a remarkable influence on wounds of an unhealthy character, as proved by him in the Romarantin Hospital. The acid will take up a large quantity of camphor, but Dr. Saulez ordinarily employs a solution of two grammes and a half of the powder in one of the acid (nine grammes to one of alcohol), which produces a pale yellow oleaginous liquid, in which the disagreeable odour of the acid is no longer to be recognized. It is not miscible with water or glycerine, and in employing it we have first to emulsify it by the addition of a twentieth part of the phenicated camphor either to olive oil or infusion of saponaria. —*Med. Times and Gaz.*, Sept. 23, 1876.

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New Remedy for External Aneurism.—Dr. **Walter Reid**, Staff Surgeon of the Royal Naval Hospital, Plymouth, has just published in a pamphlet form some short remarks on a case of popliteal aneurism which he cured by the application of Esmarch's bandage for fifty minutes. The patient was a sailor, aged thirty-seven, with a sacculated aneurism of the size of a hen's egg in the left popliteal space. For nine days he was kept in bed, on a light non-stimulating dietary, and then an unsuccessful attempt was made at cure by genuflexion, which was continued for four days. Afterwards, rapid compression by means of one of Carte's compressors was tried, but the pain and distress being so severe as almost to lead to syncope, the instruments were removed at the end of four hours. The pulsation was found to have ceased, but it shortly afterwards returned. A number of other attempts at cure by digital and instrumental compression were made, but owing to the freedom of the collateral circulation, no improvement whatever of the aneurism took place. On this account it was resolved to arrest the entire circulation in the limb by Esmarch's plan for performing bloodless operations. The elastic bandage was applied from the toes upwards, as far as the aneurism; it was then run very lightly over the popliteal space, and carried on as high as the apex of scarpa's triangle. After the application of the constricting tubing, the bandage was removed. Before the tubing was loosened—at the end of fifty minutes—a Carte's compressor was applied at the pelvic brim, and allowed to remain for a few minutes; when this was loosened, no pulsation could be detected in the aneurism. The patient himself continued to apply intermitting compression until the evening of the following day, when Carte's apparatus was finally removed. Pulsation never returned.

This case cannot be regarded, perhaps, as one of aneurism cured purely and simply by Esmarch's bandage, as no doubt the previous treatment had worked some good effect towards a cure. It does, however, illustrate a further means at the surgeon's command for curing external aneurism, after failure by digital pressure or by rapid compression of the main artery by such well and accurately adjusted force as can be exercised by Carte's pads. It must not, however, in our opinion, be supposed that Esmarch's bandage is a substitute for either of these other means of cure. It is a more severe, and will prove probably in most cases a more painful process. It should only be resorted to, therefore, after it has been shown that stopping the circulation through the main channel alone is insufficient for the particular case.—*Med. Times and Gaz.*, July 22, 1876.

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Bronchocele.—Mr. J. B. Unwin relates (*Brit. Med. Journ.*, Sept. 23) the case of a clerk æt. 20, who applied to him complaining of great inconvenience and difficulty of breathing, arising from a large bronchocele involving the isthmus and right lobe of the thyroid gland, and extending between the sterno-mastoid and the deep structures of the neck. Upon the urgent request of the patient, I consented to operate. On making an incision in the median line, and exposing the capsule, or rather the sac of the tumour, it proved to be of the cystic form of bronchocele. I laid it open, evacuating a quantity of thin purulent fluid. The tumour at once collapsed. The sac was stuffed with lint and afterwards daily injected with a strong solution of iodine. It gradually contracted, and in the course of about a month the tumour had entirely disappeared, and the patient has felt nothing of it since.

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Nephritic Pains in Ataxy.—Dr. Maurice Raynaud has attempted to show that in locomotor ataxy, "nephritic crises" may occur analogous to the "gastric crises" to which M. Charcot has called attention. The statement appears to be based on one case only, which alone is not very conclusive. Its details, however, are of interest. The paroxysms of pain were of great intensity, and were at first separated by intervals of perfect health. Afterwards they were more frequent, but not less intense; and ultimately a state of continuous profound "endolorissement" was reached, with grave general symptoms. The character and seat of the pain, the retraction of the testicle, and the diminution in the quantity of urine, present features closely resembling those of calculous nephritic colic. It is distinguished, however, according to M. Reynaud, by the longer duration of the attacks, lasting six or eight days without intermission; the frequent return of the attacks, which occur during several, even six months; and by an entire absence of those changes in the urine which are so constant in calculus. In the case described, sclerosis of the posterior columns of the spinal cord was found after death. —*Lancet*, Aug. 19, 1876.

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Lectures on Paralysis.—The eminent physiologist Dr. Brown Séquard is delivering a short course of lectures at the Royal College of Physicians, in which he proposes an entirely new theory of the mechanism of paralysis from brain disease, and a new basis of treatment. He repudiates the old doctrine of the causation of paralysis. According to the old doctrine, paralysis depends on disease or injury (usually hemorrhage) affecting some part which is a generator of will-force, or a conductor of it. He repudiates, also, the doctrine that recent observers have tried to establish—to wit, that there are centres of force in the brain which preside over the movements of specific parts of the body. By a large series of experiments and clinical evidence he proves that any muscles may be paralyzed by disease or injury of any part of the brain ; and conversely, that at times any part of the brain may be injured or diseased without any special paralysis. Thus he disposes of the old idea that paralysis is essentially caused by disease of a special part that generates or conducts will-force. The theory he would substitute is that disease or injury of the brain has a diffusive inhibitory action radiating from, or passing in definite channels down, certain columns of the spinal cord. This reminds us of a theory of paralysis propounded at an evening meeting of the College of Physicians nearly forty years ago by Mr. Herbert Mayo, and which is thus expressed in his "Pathology:" "Palsy from cerebral disease is not caused by the interruption of an accustomed stimulus, but by a new and withering influence transmitted to the origins of the nerves." It will be seen that, on this theory, paralysis is not an interception of force, nor a suppression of it at a supposed centre, but a kind of blight or an inhibition sent from an injured brain to the nervous cells generally. Clearly, if this be true, treatment must have a new basis. It is of no use to treat the cause, for that is spent; the brain lesion is unalterable. But the parts which conduct will-force to the paralyzed muscles, and which are secondarily affected, must be restored to their functions as energetically as possible. The effect must be combated. Such is a nutshell view of these highly interesting and practically important lectures.—*Med. Times and Gaz.*, July 22, 1876.

Hydrophobia from the Scratch of a Cat.—A singular case of hydrophobia is reported from Leeds, the cause of the disease having been the scratch of a cat. About the middle of last month a young man, twenty-two years of age, was admitted to the Leeds Infirmary, suffering from well-marked symptoms of hydrophobia. The patient stated that about eight weeks previously he took a strange cat into his house, and in doing so it scratched his hand. The wound healed well, and nothing appeared to be wrong until the day before admission, when he felt a peculiar pain in the hand which had been scratched. It is said that everything was done for him that was likely to afford relief, but he died in great agony on the following day.—*Med. Times and Gazette*, Sept. 9, 1876.

Evil Effects produced by Santonin.—There is probably no anthelmintic so popular with general practitioners as santonin. It must, however, be within the cognizance of many that comparatively small doses have produced convulsions of a somewhat grave character. A German contemporary lately reported a case in which poisonous effects were produced in a child two years old by the ingestion of so small a dose as a grain and a half. Convulsions commenced in the face, and extended to the extremities, while the respiratory action was greatly impeded. Under warm baths, enemata, and artificial respiration, the patient recovered. The physician in charge of the case then instituted a series of experiments on the lower animals, and found that chloral and ether inhalations controlled the convulsions produced by santonin. He naturally argues that the same treatment should be pursued in the human subject when a poisonous dose is taken.

Poisonous Properties of Glycerine.—From a series of experiments, made by the subcutaneous injection of glycerine in dogs, Drs. Dujardin-Beaumetz and Audige arrive at the following conclusions: I. Chemically pure glycerine may induce in the dog, within twenty-four hours, when introduced under the skin, fatal accidents if employed in the dose of eight grammes to 1000 grammes of the weight of the animal. 2. The general characters of such poisoning accidents (acute glycerism) resemble within certain limits, those of acute alcoholism. 3. The necroscopical lesions in glycerism are analogous to those of alcoholism, whence it would appear that the toxical action of the two bodies is very much the same. 4. In a therapeutical point of view, the introduction of too large a quantity of glycerine into the system is, probably, not without some danger.—*Med. Times and Gaz.*, Aug. 12, 1876, from *Bull. de Thérap.*, July 30.

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The St. Petersburg Lying-in Asylums.—In a recent inaugural dissertation, Dr. Stoltz gives an account of the working of the ten Lying-in Asylums that have been recently established at St. Petersburg. Established on account of the danger that exists in the agglomeration of puerperal women, these asylums have only three or four beds in each; and although many of these are placed in very insalubrious districts, a six years' experience has proved their great utility. Of the 7907 women who have been delivered in them, only eighty, or 1.1 per cent., have died, while at the three hospitals the mortality has been 3.6 per cent.; so that the lives of 200 women have been saved which would have been lost in the old establishments. Besides their great convenience in being distributed over the city, the cost of these asylums is much less than that of the hospitals, the expense of each patient being in the latter from nineteen to twenty-three roubles, while in the asylums it is only twelve roubles.—*Med. Times and Gaz.*, Aug. 12, 1876, from *St. Petersburg Med. Woch.*, July 29.

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Deaths from Chloroform.—Three deaths from the inhalation of chloroform are reported in the London weeklies for September 23. In two of them the history was that so common in such cases—violent struggling, stoppage of the pulse, death, and fatty degeneration of the heart discovered afterwards. The third case was the result of the inhalation when the stomach was full of food. Vomiting was followed by a deep inspiration, and the trachea and larynx filled with half-digested food, so that even tracheotomy did not restore the power of breathing.

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International Medical Congress, Geneva, 1877.—The International Medical Congress to be held at Geneva in 1877, under the auspices of the Swiss Federal Council and of the authorities of the Canton and of the city of Geneva, will be formally opened on Sunday, the ninth day of September, and remain in session one week.

The committee charged with the organization of the Congress is officered as follows: *President*, Prof. C. Vogt; *Vice-President*, Dr. O. Lombard; *Secretary-General*, Dr. Prevost; *Adjunct Secretaries*, Drs. D'Espine and Reverdin.

The proceedings of the Congress will be exclusively scientific. The official language will be the French.

All communications relating to the Congress should be addressed to the Secretary-General, Dr. Prevost, at Geneva.

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Obituary Record.—Died, August 17, aged 82, Maximillian Joseph Chelius, formerly Professor in the University of Heidelberg, and long a leader in Surgical Science in Germany. He was well known in this country by his excellent Handbook of Surgery, of which a translation by Mr. J. F. South, edited by Dr. G. W. Norris, was published in Philadelphia.

—— in London, August 29, aged 65, Victor de Meric, Surgeon to the Royal Free and to the German and French Hospitals. He was considered as high authority on the subject of syphilis, to the literature of which he made numerous valuable additions.

—— suddenly, September 7, at Geneva, Francis Sibson, M.D., of London, aged 61, Consulting Physician to St. Mary's Hospital.

—— August 28, Gustav Simon, Professor of Surgery in the University of Heidelberg. He was an original worker, a brilliant operator, and a large contributor to surgical literature. His latest invention is a method of examination of the abdomen by the gradual dilatation of the rectum and the introduction of the whole hand.

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VOL. XXXIV. DECEMBER, 1876. No. 408.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on a Case of Malignant Stricture of the Œsophagus. Delivered at the London Hospital, Oct. 17, 1876. By C. F. MAUNDER, F.R.C.S., Surgeon to the Hospital.

GENTLEMEN: You will recollect that while "going round" on Tuesday last I was requested by Mr. Mark Hovell, on behalf of Dr. Sutton, to see a patient with a view to performing gastro-stomachotomy. I will read the notes supplied by Mr. Hovell :—

"James W., aged fifty-seven. Malignant stricture of the œsophagus. Admitted July 5; died October 12, 1876. Patient has been a fairly healthy man, but suffered occasionally from sick headache. No family history of tumours. The first time he noticed anything wrong with his gullet was in May, 1875; and then, while having his dinner, found that one of the first mouthfuls he took (not an unusually large one) remained, after he had masticated and swallowed it, at a place in the œsophagus which he marked by pointing to about the middle of the sternum. He strained hard to swallow the morsel, but could not; then took several glasses of warm water, and after much retching succeeded in bringing the food up again, but he was so frightened at the occurrence that he went home and laid down. He ate his tea as usual that evening, and, as he had no subsequent trouble, gradually forgot the circumstance. Enjoyed good health for four months.

"In September, 1875, he noticed for the first time a sort of roughness in the œsophagus while swallowing, 'as if the food scraped him.' This scraping feeling

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gradually increased. In about a fortnight he felt as if there were something in his throat which prevented him from swallowing properly. Food seemed to go down for a certain distance, and then lodge, but on making a strong swallowing movement the food seemed to slip past the obstruction. This difficulty in swallowing slowly and steadily increased, and after a time food which had been swallowed was returned. This obliged him in February, 1876, to confine himself to liquid diet.

"In March he began to find that he could scarcely swallow liquids. He then went to a doctor, and a bougie was passed. After this he was able to swallow liquids for about another month, the stricture being kept open by a bougie passed two or three times a week.

"On admission, urine small in quantity, very cloudy, specific gravity 1019, acid; no albumen, blood, nor sugar. Brandy mixture two ounces, with the same quan- of milk and beef-tea, ordered to be given as an enema every four hours.

"He has been in great part fed by nutrient enemata since admission, and during the first month he was in hospital he gained three pounds in weight. A bougie has been passed from time to time, but the attempt to pass one about a fortnight ago failed, and subsequent attempts have been equally unsuccessful. For the last few weeks only three enemata have been given daily, and at times he could not retain them. The addition of twenty drops of laudanum to each enema, however, enabled him to hold them better. He gradually became more and more wasted, and atter y, being unable to retain enemata, complained of distressing thirst and of his mouth being dry.

"On October 11 an operation was performed. He retained an enema the same evening, and one the following morning, but none after. He sank gradually, and died on the evening of the 12th."

I will take up the case from the time of my seeing it. On reaching his bedside I observed some urine in his *pôt de chambre* highly charged with blood, apparently a new feature in his case. Finding that the patient was deemed to be the subject of a cancerous stricture of the œsophagus, I thought it possible the urinary tract might be somewhere similarly affected, and thought it right to postpone the operation that I might see Dr. Sutton upon the subject. You must recollect that healthy kidneys are believed to be essential to the success of a serious operation. Dr. Sutton saw me the next day, and requested me to perform the operation: for although the patient could not last many days, Dr. Sutton thought he would die easier if his intolerable thirst (a most distressing symptom) could be relieved. Dr. Sutton also thought that the blood in the urine might be accounted for by passive congestion consequent on extreme weakness. Both the patient and numerous friends were anxious for operative interference. I concurred with Dr. Sutton.

Operation.—In proposing to do this operation you will take care that your patient is not the subject of transposition of organs—a condition that has twice come under my notice—once in a dead subject and once in a living man. In the man under consideration the liver-dulness was natural, and the left hypochondriac region was markedly tympanitic, as though a distended stomach were there—its usual position. Great emaciation existed, with a receding abdomen. The patient was very feeble, having become unable to retain enemata, but he walked into the theatre. Chloroform was administered, and I made a longitudinal incision, from two to three inches in length, downwards from the point of the ninth rib and external to the sheath of the rectus muscle. Having divided the integuments and broad muscles *seriatim*, I reached the peritoneum, and severed this to a similar extent, and exposed small intestine. This being my first case of gastro-stomachotomy (an operation rarely performed), I had, in searching for the stomach, to rely upon a preconceived notion of the sort of sensation which that organ would yield to my finger when touched by it. I hoped, also, to be guided to it either by the left lobe of the liver, or possibly by the spleen. I altogether failed to detect it; and, having already of necessity explored the cavity to a degree inconsistent with the principle of *non-interference* (which I advocate and deem so essential to the success of abdominal surgery), I contented myself with opening what might be either colon or stomach. I called your attention to this important principle of non-interference, and illustrated its value by alluding to four cases—two infants and two adults—in which I had advised the making of an artificial anus by opening the abdominal cavity (gastro-enterotomy). Mr. McCarthy operated in one instance, myself in the other three. All recovered—a result I believe due to strict attention to special details. I was the less anxious to determine absolutely by more free exploration at the wound which viscus I was about to open, because, as the chief object of the operation was to relieve thirst, the injection of fluid could be made into either, though in larger quantities into the bowels; and it is a noteworthy fact that as the patient became unable to retain enemata, he complained more and more of thirst. The operation being completed, the patient was returned to bed, and died thirty hours subsequently.

At the post-mortem examination the anterior abdominal wall was cut away so as fully to expose the viscera. The artificial opening had been made in the transverse colon. The pyloric end of the stomach, empty and contracted, could be seen situated high up in the cavity. The left hypochondrium contained a hollow viscus, which Mr. McCarthy, who made the autopsy, at first thought was the distended stomach, but which proved to be the splenic angle of the colon: and this it was which yielded marked resonance on percussion prior to operation. This completely concealed the bulk of the stomach (quite empty and very contracted). which could only have been reached during life by tapping the intestine and dragging it down when collapsed. The intestines were greasy, as in the first stage of peritonitis. The middle of the œsophagus was the seat of cancer, and the right lung had a large nodule of a similar growth in it. The kidneys were congested, but no malignant deposit was found in them; and thus the blood in the urine was explained.—*Medical Times and Gazette*, Nov. 11, 1876.

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Clinical Lecture on Stricture of the Urethra.—Delivered at the Liverpool Royal Infirmary. By Reginald Harrison, F.R.C.S., Surgeon to the Infirmary.

Gentlemen: The practice of this infirmary affords you abundant opportunities of observing the surgical disorders of the genito-urinary system, and of these cases of stricture of the urethra and the complications arising out of it form no inconsiderable proportion. Associated as I have been for some years with two of the hospitals in this town deriving a large number of their patients from the seafaring population connected with the port, my observation leads me to believe that amongst this class of the community stricture is a common disorder. And that it should be so is not surprising. Gonorrhœa, contracted on shore, in the debauch that frequently precedes the vessel's departure for some foreign part, breaks out two or three days afterwards. Treatment, except in the case of certain passenger vessels, is usually conducted by the captain or his mate, and not always with advantage to the patient. The old notion that every disorder consequent on promiscuous intercourse is "venereal," and must be treated by mercury, still prevails; and large doses of calomel, until profuse salivation is produced, is not rarely the only remedy administered for a gonorrhœal discharge. Some of the worst cases of stricture that I have seen have been occasioned, under similar circumstances, by resort to the most primitive proceedings for the relief of retention of urine. In the absence of catheters from the ship's medicine chest, or still more frequently, as I have found, from their rottenness, I have known instances where the wire from a soda-water bottle and an iron skewer have done duty in "forcing" a stricture. It is only a short time ago when a man was admitted into No. 1 ward with retention and a badly lacerated urethra, as a consequence of an attempt on the part of the mate of his ship to reach the bladder by the aid of a pointed piece of wood, roughly modelled to the shape of a bougie. In this instance the mate was more than professionally interested, inasmuch as he had occasioned the retention by kicking the patient behind the scrotum. The most remarkable piece of ingenuity some of you will remember as occurring a few months ago, where, after a sailor had endured for over three days the agonies of retention, an endeavour had been made to introduce through the urethra a piece of lead gas-piping, which had been devised, *in extremis*, for the purpose by the engineer of the ship. Unfortunately, however, this failed to effect the purpose. When I saw him on his arrival here, on the fourth day of retention, I found the urethra much lacerated, and it was with considerable difficulty that I introduced a catheter, and removed a large quantity of the most fetid urine imaginable. Relief, however, came too late, the man dying shortly after his admission with convulsions and uræmic poisoning.

Though deploring that persons should be placed by circumstances in such unfortunate positions, I mention these cases for the purpose of showing you that your field for observation in this department of surgery is by no means restricted to routine, or even to the freaks of nature or disease. In undertaking to say anything about the treatment of stricture, I am conscious that the subject is a well-worn one. Still, with all our plans of treatment, we have not arrived at anything like uniformity of practice, and as this is only to be obtained by taking the sum of our respective experiences, I feel less hesitation in bringing under your notice some conclusions which my own experience, chiefly gathered in the wards of this hospital, has enabled me to arrive at. These considerations I hope to place before you during my course of clinical lectures this session. In using the term "stricture," I reserve it, as Sir Henry Thompson suggests in his eminently practical work on Diseases of the Urinary Organs, for one kind of stricture: viz., organic stricture. "Spasm" and "inflammation" are conditions more or less transient, but do not constitute stricture in the acceptation of the term which is now generally adopted. The causes of stricture are various. Let me give a few illustrations. A patient has a venereal sore on his glans penis involving the meatus. When this heals a cicatrix is left. Cicatrices are more or less disposed to contract, and in this instance result in the narrowing of the urethral orifice. This condition was well illustrated by a case in No. 7 ward, where the same state of things was produced by an improperly performed operation for circumcision; a portion of the glans penis having been removed along with the prepuce. When the sore healed, the cicatrix contracted, and the patient presented himself here with a tight stricture of the meatus requiring division. Another cause of stricture amongst our sailor patients arises from injuries where the urethra becomes bruised or lacerated. A man falls from aloft across a spar or a rope, and ruptures his urethra. If the patient recovers from the immediate effects of the injury, it is with his urethra scarred. Here we have the worst variety of stricture—traumatic—a form of the disorder more obstinate to deal with than any other. In our inquiries as to the cause of stricture, we find that by far the larger proportion of our patients attribute their misfortune, directly or indirectly, to previous attacks of gonorrhœa. Those who do so *directly* are disposed to look upon the stricture as the natural consequence of their previous mishap. Those who do so *indirectly* usually have something to say about the treatment employed and its bearing upon the subsequent formation of a stricture. It is worth our while for a moment to analyze the statements made by this latter class with the view of ascertaining how far their allegations hold good. "I was almost cured of my gonorrhœa, only a very slight discharge remaining, which I thought would go away of itself," is the statement of the patient who is convicted of his own indiscretion in having allowed things to go on from bad to worse. Others, again, seek refuge in referring their misfortune to the improper advice they have received. "I was told that it was only a gleet, due to weakness, which would go away by iron, tonics, and cold baths." Here we have illustrations of gleet terminating in stricture.

Now it is well for you, once for all, to understand that a gleet is not a disorder which is disposed to go away of itself; on the contrary, it requires careful and well considered treatment, and if it does not receive this—that is to say, if it is clumsily dealt with or not dealt with at all—it most probably ends in the formation of a stricture.

A gleet is to be regarded as indicative of the early formation of stricture. Nay, further, you will not do wrongly in regarding a gleet as the stage in the stricture-forming process when by your treatment you can promise your patient to restore his urethra to its normal condition; when a stricture is once allowed to become cicatricial in its character, you may palliate or adapt, but you can no more *restore* his urethra than you can by dissection or any other process remove a scar from his skin. You may moderate the inconveniences of a scar, but you cannot obliterate it. Let not, then, the curable stage of stricture pass by; at all events, let the onus of doing so rest with your patient, and not with yourself.

Again, it is very common to hear patients attribute their strictures to the use of injections in the treatment of their gonorrhœas. A considerable amount of prejudice exists in the public mind in reference to the use of these applications. Patients not unfrequently say, when consulting you about a gonorrhœa, "Do not order me an injection, as I understand they often occasion stricture." Is there any truth in such an allegation? Assuredly not, presuming, of course, injections are judiciously prescribed and properly used.

Let me remind you that the cure of gonorrhœa by specifics is essentially one on the principal of injection. For how do the drugs that act specifically on the urethra effect their purpose? How do we explain the action of copaiba, oil of sandal-wood, creasote, and certain terebinthinates, in the cure of gonorrhœa? Do not all these drugs exercise their therapeutic properties, by certain of their constituents, for the most part demonstrable, being conveyed by the urine to the situation of the disorder? What is this but a cure by injection, or, to be etymologically correct, ejection? It is the urine of the patient that conveys the specific to the disease, just as the rose-water in your injection does the sulphate of zinc, or other astringents.

It is the abuse of injection that is open to animadversion. Injections in the treatment of gonorrhœa only do harm when, by reason of their composition or strength, they act as *irritants* to the mucous membrane.

In the ordering of urethral injections there are two rules which should be regarded: 1. Do not strain the urethra by the *quantity* of injection used. 2. Do not pain the urethra by the *quality* of the injection. A teaspoonful of fluid *put* into the urethra frequently is better than a tablespoonful *forced* in three times a day. This is a point upon which I have long insisted. In prescribing injections you should feel your way, adding to the strength according to circumstances. Some persons, it is well known, are far more sensitive to the action of remedies than others; and this applies equally to the urethra—"The temper of the urethra varies as much as the temper of the mind."[1] An injection appropriate in strength to a first gonorrhœa is like the proverbial drop of rain on the duck's back in the case of the *habitué*. I remember ordering one of the latter an injection well known as "the four sulphates." It cured him effectually, and without pain. A friend, hearing of the success, borrowed the prescription, and, without proper advice, used it. The consequences were, an acute attack of cystitis and a subsequent stricture. Surely it is only to the foolhardiness of the sufferer that such an unfortunate result is to be attributed.

And I would here remark that I have seen a great deal of damage done and suffering occasioned by the use of some of the nostrum injections advertised throughout the country as "infallible cures" and "preventives." Many of them contain the ordinary astringents applicable to the urethra, but in a very potent form. I caution you therefore against sanctioning their use.

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[1] Brodie on Diseases of the Urinary Organs, p. 50.

These observations have been made with the view of showing that it is only by their improper use that injections are open to the charge of occasioning stricture. If they are prescribed in accordance with the rules I have given, you will never have cause to regret their use.

[Mr. Harrison then proceeded to speak of the pathology of stricture, illustrating his remarks by cases which have recently been under treatment in the infirmary.]—*Lancet*, August 19, 1876.

HOSPITAL NOTES AND GLEANINGS.

Popliteal Aneurism cured in two hours by the application of Esmarch's Bandage.—D. M'H., labourer, æt. 29, was admitted into Manchester Royal Infirmary under the care of Mr. F. A. Heath, Oct 16. He stated that up to within three weeks of his admission he enjoyed good health. While at his work about that time he experienced a weakness and pain in the calf of his leg, and noticed a lump behind the knee, which throbbed a good deal, and gave him some pain. He had never had syphilis, but had been a pretty heavy drinker at times. On admission an aneurism, the size of a small orange, was found occupying the left popliteal space. It pulsated freely, and a distinct bruit could be heard in it. The tibial arteries at the left ankle could not be felt, but were plainly perceptible at the right ankle. The veins on the surface of the left leg were larger than those on the right, but there was no œdema of the limb. Heart-sounds perfectly healthy, and area of cardiac dulness normal.

Oct. 17. At 10.15 A. M., after the limb had been elevated to empty it of blood, Esmarch's elastic bandage was carefully applied from the toes upwards, until the lower part of the popliteal space was reached. The patient was then directed to stand up in order to allow blood to flow into the aneurism, and the bandage was then lightly passed over it, a layer of cotton-wool intervening. The roller was then applied above the knee to within three inches of Poupart's ligament, where it was secured. Temperature 98.6°; pulse 80. At 11 A. M., the patient was somewhat restless, and complained of great pain in the limb. One-third of a grain of morphia given subcutaneously. At 11.15 A. M., temperature 98.6°; pulse 90; Signoroni's tourniquet applied to the femoral artery in Scarpa's triangle, and Esmarch's bandage, having been on exactly one hour, was slowly removed; tumour felt hard, and no pulsation could be perceived in it. The leg and toes looked blue, and felt cold. The limb was enveloped in cotton-wool and flannel bandages to maintain the temperature. Pain was relieved on removal of Esmarch's bandage, and the patient appeared very cheerful. At 12.15 P. M., all pressure was taken off for a few moments, exactly two hours after the operation had been commenced. The tumour was quite hard, seemed a little smaller, and no trace of pulsation could be felt in it. A small vessel was noticed pulsating over the aneurism near to the external side; tourniquet reapplied. At 2.15 P. M., pressure was again removed for a short time; no pulsation in the tumour. At 4.15, just six hours after Esmarch's bandage was applied, the tourniquet was entirely removed, and the tumour on being examined was found to be quite hard, and free from pulsation. The patient was not in any pain. The tourniquet was applied lightly over the femoral artery, so as to control, but not to stop, the flow of blood

18*th*. 9.30 A. M.: Tumour much smaller and quite hard; no trace of pulsation to be felt in it. Limb quite warm. Three small arteries to be felt pulsating in front and at inner side of knee-joint.

19*th*. Tourniquet entirely removed. Aneurism hard and getting smaller.

Mr. Heath was led to adopt this method of treatment from the account which appeared in *The Lancet* of the 30th Sept. of the success attending a case of Mr. Wagstaffe's, and his account was followed step by step during the operation. It may fairly be assumed that the aneurism was cured at the end of the second hour, for the tumour was quite hard and free from pulsation at the end of that time.—*Lancet*, Nov. 4, 1876.

Peculiar Luxation of the External Extremity of the Clavicle.—The luxation of the clavicle directly backwards over the acromion is a form which is rarely seen. In neither "Malgaigne" nor the "Dictionnaire Encyclopédique des Sciences Médicales" is any mention made of it.

Michael H——, aged eighty-one, shoemaker, native of Antwerp, came to the hospital, complaining of inability to use his right arm. On the 7th September, while crossing the street, his foot slipped as he was getting on to the pavement, and he fell on to the back part of his shoulder.

At first sight the case appeared to be one of luxation of the head of the humerus forwards, several of the symptoms of that form of displacement being present. But upon closer examination it was easy to determine that the head of the humerus had not left its cavity, and that there was in reality a luxation of the clavicle, and not of the humerus.

The symptoms were briefly as follows: In front the internal extremity of the clavicle was prominent, the inferior and superior clavicular fossæ were effaced, and the distance between the middle line and the shoulder was diminished. At the shoulder the head of the humerus was found to be in its normal position. The articular surface of the acromion was found to be situated in front of the clavicle. Behind the acromion the external extremity of the clavicle could be readily distinguished. The articular surface of the latter was situated outside the acromion, and its anterior border corresponded with the posterior border of the acromial process. The head was slightly flexed, and turned towards the right. The elbow was separated from the body by a distance of ten centimetres. The spinal border of the scapula was prominent, and its inferior angle was pushed towards the spinal column. The movements of the arm were very limited, and caused much pain.

The patient was put under the influence of chloroform with the view of reducing the luxation, but this was found to be impossible; accordingly his arm was fixed in a sling.

M. Nicaise, who was doing duty at that time for M. Péan, proceeded to make some experiments upon the dead body, in order to determine the mode of production of this form of luxation. With the section of the acromio-clavicular ligament it was impossible to produce the luxation. The trapezoid ligament was then cut, and it was then found easy to produce the desired displacement. The conoid ligament was left intact. From these experiments it may be inferred that the rupture of the trapezoid ligament is necessary for the production of this form of luxation.—*Lancet*, Oct. 14, 1876.

MEDICAL NEWS.

ORIGINAL ARTICLES.

Further Report of a Case of Sanguineous Discharge from the Vagina of an Infant aged three months. By EDWIN FARNHAM, M.D., Cambridge, Mass.—The urine of the mother of the child, Mrs. S., was examined three times, chemically and microscopically, and at no time were any evidences of renal trouble discovered.

Since the case was reported the child has developed an eruption of hereditary syphilis. On investigation of the family history it appears that about six years ago the father had a chancre and a bubo which suppurated. The mother has at no time given any indication of infection.

The infant has been weaned, and put upon a mercurial course, the drug being exhibited in the form of hydrargyrum cum creta. Under this treatment it has thriven, the eruption fading, and the child increasing in weight, though not so rapidly as before weaning. The weight (naked) when five months old (Nov. 7th, 1876) was 15 pounds.

Whether the development of such a disease as hereditary syphilis throws any light on the causation of the vaginal discharge I am unable to decide.

By a misprint it is stated in the preceding Number of the NEWS, that the mother suffered during her pregnancy from Toxic convulsions instead of *Tonic*.

DOMESTIC INTELLIGENCE.

Johns Hopkins Hospital, Baltimore.—The trustees of this institution have been so fortunate as to obtain the services of Dr. John J. Billings, Assistant Surgeon, U. S. A., as professional adviser. This excellent appointment is another proof of the good judgment which the management has so far conspicuously displayed in the performance of their difficult task.

—

International Congress of Ophthalmology.—This Congress met in New York on the 12th of September, pursuant to adjournment at London in 1872. The following officers were elected. *President*, E. Williams, M.D., of Cincinnati; *Vice-Presidents*, Mr. Brudenell Carter, of London, and Dr. E. Hansen, of Copenhagen; *Secretary*, Dr. C. S. Bull, of New York. A number of interesting papers were read before the Congress, and will appear in the volume of Transactions. A committee consisting of Mr. Carter and Drs. Hansen and Becker were appointed to designate, after consultation, the place of meeting in 1880.

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Honors to American Physicians.—Mr. William Adams, President of the Medical Society of London, inaugurated the winter session by delivering an address in which he gave a graphic and complimentary account of his visit to America as a delegate to the International Medical Congress. He concluded by proposing as corresponding fellows of the society, Drs. S. D. Gross, of Philadelphia; Austin Flint, of New York; Joseph Pancoast, of Philadelphia, and Surgeon-General Barnes, U. S. A.

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Deaths from Chloroform.—The *Ohio Medical Recorder* for October, 1876, reports a case of death from the inhalation of chloroform occurring in a young woman aged 30, to whom it was administered for the extraction of a tooth.

Another case is reported in the *Pacific Medical and Surgical Journal* for the same month. The patient was a man who resided in Madison County, Indiana, and the anæsthetic was administered for the purpose of extracting a thorn from his foot.

Dr. W. T. McNutt reports (*Pacific Med. and Surg. Journal*, July, 1875) a case of this which occurred during the reduction of dislocated shoulder joint.

—

International Medical Congress.—We are requested to state that gentlemen who wish to obtain early copies of the forthcoming volume of *Transactions of the International Medical Congress*, held in Philadelphia, September 4-9, 1876, should forward their subscriptions without delay to the treasurer, Dr. Caspar Wister, 1303 Arch St., Philadelphia.

The price, to subscribers, is Six Dollars ($6 00) per copy, payable in advance; but this rate will be considerably increased upon the day of publication.

—

Obituary Record.—Died in Pittsburg, Oct. 14th, 1876, of pneumonia, A. G. Walters, M.D., aged 65 years. Dr. Walters was a bold operator, and enjoyed a large practice. He was a native of Russia, and a graduate of the University of Berlin, but has resided in this country since 1836.

——— August 16, 1876, Julian S. Sherman, M.D., Professor of Orthopedic Surgery and Diseases of the Joints in the Chicago Medical College.

FOREIGN INTELLIGENCE.

Carbolic Acid as a Local Anæsthetic.—Dr. Bergonzini recommends a new painless mode of opening abscesses. It consists in placing in contact with the skin for three or five minutes a mixture formed of one part of glycerine and two parts of carbolic acid. It produces neither redness nor swelling, and may be employed with advantage in autoplastic operations, and in the treatment of superficial neuralgia.—*Med. Times and Gazette*, Oct. 21, 1876, from *Presse Méd. Belge*, Oct. 8.

The anæsthetic properties of carbolic acid were first pointed out more than four years ago by Dr. J. H. Bill, U. S. Army, in an interesting paper in the *Am. Jour. of the Medical Sciences* for July, 1872.

—

Administration of Sulphate of Quinia.—Dr. Dorville prescribes from one-half to one gramme in a small glass of brandy at the commencement of the cold stage, to arrest the paroxysm or prevent subsequent attacks. In a moderate dose the action of the quinine is rapid and energetic, and its taste so taken is not very disagreeable.—*Med. Times and Gazette*, Nov. 4, from *Union Méd.*, Oct. 19.

Poison of Non-edible Mushrooms.—Dr. Schiff has demonstrated that these have a common poison, muscarina, and that its effects are counteracted by both atropia and daturia.

Experiments on Filtration.—Mr. J. A. Wanklyn states that on continuing his experiments on the action of "Silicated carbon" filters, he has obtained results beyond his most sanguine expectations.

A solution of sulphate of quinine of such a strength that one gallon contained 8.26 grains of soluble sulphate of quinine ($C_{20}H_{24}N_2O_2H_2SO_4,6H_2O$) was completely deprived of quinine by one single filtration through six inches of filter.

The liquid before filtration yielded 3.55 milligrammes of albuminoid ammonia per litre, and after filtration 0.02 milligrammes of albuminoid ammonia per litre.

A solution of the above strength is sensibly bitter to the taste, and after filtration is no longer bitter.

Chemists will thus perceive that the silicated carbon filter is endowed with extraordinary powers.

That carbon has some power in absorbing alkaloids has been known for years (*vide* Watts's Dictionary); but that it absorbs alkaloids absolutely and almost instantaneously is new. A fresh powdered silicated carbon filter must be an excellent antidote in poisoning cases.—*The Sanitary Record*, July 8, 1876.

Utilization of Paris Sewage.—Since 1868, the Paris sewage has been employed to irrigate the large plain of Gennevilliers, which is inclosed by the windings of the Seine. This irrigation has converted the arid soil of this plain into a market garden of extraordinary fertility. No one disputes this, but it has been alleged that the sewage has acted injuriously upon the population of the district. An investigation, instituted by Dr. Bergeron, has proved the groundlessness of this statement, for with an increased population the longevity has also augmented, and the mortality declined. The water from the wells which has filtered through the soil is found quite void of organic matters.—*Med. Times and Gazette*, Oct. 28, 1876, from *Révue Méd.*, Oct. 9.

Smallpox.—London is threatened with an epidemic of this disease. The fatal cases of this disease, which were but 7 during the first quarter of this year, rose to 26 in the three months ending June, and further increased to 84 in the eleven weeks ending on the 16th of September.

During October the mortality of the disease diminished; the number of deaths during the week ending Oct. 28 was 15, as compared with 11, 16, and 22 in the three weeks immediately preceding. But in the week ending on the 4th of November the deaths mounted up to 21. The most unfavourable feature, says the *Lancet* (Nov. 11) of this week's return, is the wider distribution of the fatal cases. Further, on the 4th of November, the two Metropolitan Asylum District Smallpox Hospitals contained 231 inmates against 185 the preceding week. No less than 101 new cases were admitted during the week; the highest weekly number of admissions since the beginning of the present epidemic being 62.

University of Edinburgh.—Dr. Grainger Stewart has been elected Professor of Medicine to fill the vacancy caused by the death of Prof. Laycock.

School of Medicine of Paris.—It is stated (*L'Union Médicale*, Oct. 17th) that the city of Paris has commenced operations for the enlargement of this school. The size of the school will be tripled.

Canadian Medical Association.—This Society held its annual meeting at Toronto in August. The next meeting will be held in Montreal on the second Wednesday in September, under the presidency of Dr. Hingston of that city.

Obituary Record.—Died Sept. 21st, 1876, of phthisis pulmonalis, aged 64, Thomas Laycock, M.D., Professor of the Practice of Physic in the University of Edinburgh.

PROSPECTUS FOR 1877.

The continued favor bestowed on the "American Journal of the Medical Sciences" and its adjuncts enables the publisher to maintain for 1877 the very liberal terms offered during the past year, and encourages the Editors in the effort to render these periodicals, if possible, indispensable to every reading physician.

The "Monthly Abstract of Medical Science" will preserve the features which have already rendered it so popular, of presenting every month a carefully condensed and systematically classified view of the improvements and discoveries reported in the medical literature of both hemispheres. During the past year it has contained

36	Articles on Anatomy and Physiol.	109	Articles on Midwifery and Gynæcology.
47	" Mat. Med. and Therap.	18	" Med. Jurisp. and Toxicol.
234	" Medicine.	8	" Hygiene.
169	" Surgery.		

Or, in all, 616 articles in a single year, with an elaborate Index, forming an octavo volume of about 600 closely-printed pages.

The "American Journal of the Medical Sciences" has the promise for 1877 of its usual variety of important contributions from distinguished members of the profession in all parts of the country. Special attention will be bestowed, as heretofore, on its Bibliographical Department and its Quarterly Summaries to keep its subscribers informed as to all subjects of professional interest from every quarter.

In the "Medical News and Library" will be continued the translation, by Dr. Stimson, of Gosselin's "Clinical Lectures on Surgery," commenced in the number for July, 1876. New subscribers for 1877 can obtain the portion issued in 1876 on remittance of Fifty cents, if promptly made.

⁂ Cloth covers for binding the "Abstract" and the "Journal" will be forwarded free of postage, to advance-paying subscribers, on receipt of six cents in postage stamps for each cover. Of these there are two for the "Journal" and one for the "Abstract" in each year. and those for 1876 are now ready.

The terms for these periodicals will be continued as heretofore, during 1877, the "News and Library" being furnished without charge as a premium for advance payment to the "American Journal of the Medical Sciences," and the "Monthly Abstract" being furnished at One Dollar per annum, in the same manner, as a further inducement—all being *free of postage*, as follows:—

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Nos. 706 and 708 Sansom St., Philadelphia, Pa.

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THE

MEDICAL NEWS.

MDCCCLXXVII.

VOL. XXXV.

PHILADELPHIA:
HENRY C. LEA.
1877.

PHILADELPHIA:
COLLINS, PRINTER.

THE MEDICAL NEWS AND LIBRARY.

VOL. XXXV. JANUARY, 1877. No. 409.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on certain rare Forms of Solid Œdema of the Legs. Delivered at the London Hospital, by JONATHAN HUTCHINSON, F.R.C.S., Senior Surgeon to the Hospital.

GENTLEMEN: In connection with several cases which have recently been under our observation, I wish to-day to ask your attention to the different causes of œdema of the legs. Under many circumstances œdema of these parts is connected with a tendency to effusion into the cellular tissue generally, with implication, perhaps, of the great serous cavities also. In most of these it is indicative either of a central impediment to the circulation in the form of heart disease, or of deficient action on the part of the kidneys. There are many other cases, however, in which the swelling of the legs is due to a cause more or less distinctly local, and there are others in which local and general causes each take their share in the result. It becomes of importance, then, and of much interest, to discriminate in each individual case as to the special cause which is at work; and before introducing to you the individual cases, I will attempt an enumeration of the principal groups into which we may classify them.

First let us note the obvious fact that in the lower extremities the venous circulation is at some difficulty, and that if any influence be at work in the body tending to produce transudation of serum from the

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bloodvessels it will probably show itself first in the feet and legs. Thus it may be convenient to mention, as the first group, cases in which slight passive dropsy occurs in connection with mere debility. This is common enough, and especially so in the aged and in those whose occupations compel them to remain for long periods standing. Although often unattended by any discoverable disease either in heart or kidneys, its occurrence of course always suggests an examination of those organs.

In the second group we may place cases in which the œdema is due to positive impediment in the heart. In these it will almost always be confined at first to the feet and legs, and it will be purely passive—that is, unattended by any inflammatory induration of the parts affected.

In the third group œdema from disease of the kidneys may be placed; and of these cases we may remark that not unfrequently from the first there is swelling of other parts—the eyelids, backs of hands, etc., and very frequently dropsy of the serous cavities.

Of the three forms of œdema just mentioned, it may be said that they are almost always symmetrical and of nearly equal severity in the two limbs. Those which are to follow, however, do not observe this rule, and although any one of them may affect both legs, it is far more common in most of them to observe the symptom on one side only. This onesidedness, of course, attracts our attention to a local cause.

In the fourth group we may include all cases in which the œdema is due to mechanical obstacle to the return of venous blood. The commonest example of this class is in the instance of pregnant women in whom the weight of the uterus, pressing upon the iliac veins of one or both sides, very frequently causes what we may suitably call venous œdema of one or both legs. Ovarian tumours, or any other kind of tumour in the abdomen, may produce similar results. And let me here remark that it is by no means certain that the swelling in these cases will wholly disappear when the cause is removed; for not very unfrequently we observe cases in which repeated pregnancies have at length induced a condition of permanent dilatation of the veins with swelling of the feet. The risk of the œdema becoming permanent is, however, far less than in certain cases which I shall have to mention presently in which local inflammation occupies the chief place as a cause.

In the fifth group we will place all cases in which there is actual disease of the venous trunks. In cases of phlebitis of the main vein of the limb you have seen the extremity become suddenly much swollen and œdematous, and in such cases the œdema will always be, both as regards its extent and its permanence, in relation with its cause. In plugging of superficial veins, we rarely observe any great amount of œdema, and the same remark is true of the numerous cases in which the superficial veins become entirely disabled by varicose dilatation. In these cases the deeper trunks are efficient to carry on the circulation. In connection with this group I must mention the disease known as *phlegmasia dolens*, which has by many been associated, and perhaps correctly in some cases, with venous occlusion. I find it difficult, however, to believe that plugging of veins is the usual cause of this affection; for, if it were, the deep veins would often be obliterated, and the result would be compensatory enlargement of the superficial ones. The phenomena of phlegmasia dolens are far more like those of lymphatic than venous obstruction, and it ought probably to be included in our next group.

The sixth group shall include those cases in which the œdema is wholly or chiefly due to lymphatic obstruction. So little has as yet been made out as to the pathology of the lymphatic system, and so few are our opportunities of post-mortem examination in this direction, that we are obliged to be somewhat less certain in our statements regarding this group than in any other. I do not think, however, that I shall run any risk of misleading you if I ask you to believe that the lymphatic system often takes a large and chief share in the production of œdema, and that it is quite possible for long tracts of the lymphatic tubes to be occluded by inflammatory thickening. I shall have to mention presently one very instructive case in which a whole network of lymphatic trunks in an indurated and cord-like condition could be very easily felt under the skin. In the majority of cases, however, the diagnosis of lymphatic obstruction is conjectural only, and depends to a considerable extent upon the absence of any other satisfactory explanation of the symptoms. In lymphatic cases the disease is almost always non-symmetrical. We may note also, as a curious fact, that very commonly no enlargement of the lymphatic *glands* occurs. I should be inclined to suspect this cause in any case in which the œdema was strictly local and abruptly limited, there being no evidence of disease of the veins or of mechanical pressure. I should consider my diagnosis confirmed if the œdema cleared off without leaving any dilatation of superficial veins, and during the progress of the case I should repeatedly and carefully examine the limb in order to ascertain if any little lines like whip-cord could be felt under it. It is very difficult in many cases to separate solid œdema consequent on obstructed lymphatics from chronic inflammation of the cellular tissue, and in point of fact it is exceedingly probable that the two conditions usually complicate each other. Indeed, it is not unlikely that primary disease of the lymphatics is extremely rare, and that almost always it is secondary to inflammation of the skin and subcutaneous tissues. Modern research has shown that the lymphatic radicles terminate in the areolar interspaces. Hence the facility with which the lymphatic system becomes involved in all forms of inflammation of the skin allied to the erysipelatous.

My last group — the seventh — shall comprise all cases in which the œdema is the result of local inflammation; and these arrange themselves under three heads—those in which the inflammation is allied to erysipelas, those in which it takes the form ef elephantiasis, and those in which thrombosis of venous capillaries, or true purpuric ecchymosis, occurs. The last of these is one of but little importance, and I shall not again advert to it; but the other two are of much interest, and it is with them that I shall be chiefly concerned in the rest of my lecture.

The term "elephantiasis" is now definitely understood to be restricted to those cases of which the common Barbadoes leg is an exaggerated type. It is the *Elephantiasis Arabum*, the *Boucnemia* of Mr. Erasmus Wilson, and the *Scleriasis* of some continental writers. It has nothing whatever to do with true leprosy, to which unfortunately the term *Elephantiasis Græcorum* was formerly applied. Now in all cases to which the term elephantiasis is applicable there is œdema and something more; there is also overgrowth. And here we establish the line of demarcation between elephantiasis and all other varieties of persistent œdema. Prove that the tissues have become hypertrophied, that they are not only sodden with serum, but that they are overgrown, and you prove the right of the malady to the title of elephantoid. It has hitherto been the custom to use this name only in application to the most exaggerated examples of the disease. Nothing can be more injurious to our correct appreciation of the processes of disease than this unfortunate habit. Size ought never to be made a basis for classification; and between the conditions of chronic thickening of skin, with solid œdema and papillary growth, which are not at all uncommon in our outpatient rooms, and the most hideous example of Barbadoes leg which you could find in the West Indian Islands, there is no distinction excepting that of degree; the pathological process is precisely the same in both. The same remark applies to the cases of inflammatory hypertrophy of the labia, which are not uncommon in English practice. In hot countries two forms of elephantiasis are recognized, but they are not wholly distinct, and I believe that not unfrequently one precedes the other. I allude to the tuberculated and the smooth varieties. In the smooth there is much less evidence of growth than there is in the tuberculated, or rather perhaps we ought to say there is less evidence of papillary growth. In the one the skin becomes warty and nodular; in the other, although much indurated, it remains smooth. The tuberculated form rarely affects both legs, whilst the smooth frequently does so. I am told that in India it is usual to consider the smooth form as associated with constitutional disease, and as indicating the necessity for change of residence and the use of quinine; whilst the tuberculated is more purely local. In English practice we meet also with the two varieties. In most cases the tuberculated form of elephantiasis takes its origin from some local injury or local source of inflammation: an ulcer on the leg; an attack of eczema; or, on the genitals, venereal sores may be its starting point. The smooth form, however, begins usually without such cause, and is often set up by a form of inflammation somewhat resembling erysipelas. To this stage the name *Barbadoes rose* has been given. It differs from the common forms of erysipelas in having no abrupt margin and in being unattended by vesications, and, further, in the fact that the fluid effused shows no tendency to reabsorption. The attack is, however, distinctly inflammatory, and it is very probable that inflammation of the lymphatics takes a considerable share in its results. We have in both forms of elephantiasis a very interesting illustration of the results of overfeeding of tissues. Inflammatory disturbance of nutrition is the starting-point. The tissues are flooded with serum, and, owing to their dependent position (scrotum, labium, or leg), this serum has difficulty as to its reabsorption. The cells of the part, already in a state of excitement, feed on it, and irregular modes of growth are the result. You might obtain a somewhat parallel phenomenon, if to any given village unlimited supplies of meat and beer were weekly consigned for gratuitous distribution.

I think I have now said enough to place you in a position to appreciate the cases which I have to relate. I shall not trouble you with any examples of the more common forms of dropsy—these being, indeed, of medical rather than of surgical interest—but shall restrict myself to those of the more unusual forms, preferring such as afford some clue to the nature of the malady.

In the following case we have an instance of immense solid œdema of the whole lower extremity up to the very hip, occurring in a syphilitic patient, as a sequel to a slight bruise of the foot.

On June 28, 1871, I saw, with Mr. Cornelius Garman, of Bow, a very curious case of unsymmetrical persistent œdema. Our patient was a thin, nervous woman, aged about forty-two, the wife of a sea captain. Her left leg, from the pelvis downwards, was enormously swollen, the skin being smooth and brawny. About the foot there were patches of congestion, but in the thigh, where the swelling was as conspicuous as in the leg, the skin was quite pale. The thigh measured five inches more in girth than its fellow, and she assured me that a year ago it had been for a time very much larger than at present. The toes and lowest part of the foot were not swollen in proportion with the rest of the member, the œdema beginning about the instep, and increasing up the left thigh. There was not a trace of œdema in the other leg. Mrs. B—— told us that it had followed from a slight bruise on the instep from a fender. She pointed out to us the exact place of the bruise, and said that inflammation and swelling of the foot followed almost directly after it, although there was no abrasion, and had never been any wound. It was now eighteen months since this slight accident, and although the leg had at times improved it had never returned to its former size. Mrs. B—— complained much of severe aching pain in various parts of the limb; she had never observed any lines of inflamed lymphatics, nor had the inguinal glands ever enlarged. She had repeatedly been obliged to remain in bed for a few days at a time when the swelling was greater than usual, but she would not admit that she had ever derived more than very temporary benefit from the recumbent posture, and asserted that on the whole the limb was better when she walked about. I was told by Mr. Garman that he believed she was accustomed to drink spirits, and that seven years ago he had attended her for constitutional syphilis, some scars of which (rupia) he showed me. Of late years she had not had any symptoms referable to syphilis, and had, indeed, enjoyed good health.

In December, 1872, Mr. Garman was kind enough, in answer to an inquiry, to inform me of the progress of the case. We had determined on a course of iodide of potassium internally, and the local use of an evaporating lead lotion, insisting also on as much rest in bed as possible. The iodide had made her sick, and had been replaced by small doses of mercury, and under these the leg so much improved that it returned to almost its natural size. After remaining well for some months, a relapse occurred, and great swelling was again produced. The patient, at the date of Mr. Garman's letter, was on a voyage to Australia.

In 1873, Mrs. B—— was again brought to me by Mr. Garman, this time on account of a deep syphilitic ulcer on her left arm. Of this she soon got well under the use of iodide and mercurials. Her leg still remained larger than the other, and liable to temporary increase of œdema.

The next case which I shall relate to you is in many respects similar to the preceding one, but it has some features of yet greater interest. We have the same history of constitutional syphilis in the background, and of a slight bruise on the leg as an exciting cause. Then follows a long attack of œdema of one lower extremity, with, ultimately, sudden implication of its fellow. Enlarged and tortuous trunks of lymphatics were easily recognized in the abdominal wall.

Mr. W——, a gentleman of about fifty, was formerly under my care for several years on account of syphilis affecting his nervous system, and took iodide of potassium almost continuously for a very long period. In the beginning of June, 1871, he came to me one day complaining of pain in his right leg. I could find nothing the matter with it, but three days later the whole leg was in a condition of soft œdema, and on the outer part there was the ecchymosis of a bruise. The skin was not in the least cut; it was a simple contusion. On the first occasion he had denied having had any injury, but he now recollected that he had struck his shin in getting into a railway carriage. The œdema was peculiar in its sameness in all parts of the leg, and in the fact that the skin was pale, and had not the slightest trace of congestion. The leg measured an inch and a half more in girth than the other, and wherever pressure was made a deep pit was produced. A few days later he complained of pain up the inner side of the thigh, and we could distinctly trace an enlarged lymphatic cord. A few days after this the whole thigh was swollen, measuring an inch more than the other. He had in connection with this œdema of the leg no special constitutional symptoms. At the end of a fortnight the œdema of the leg had almost wholly disappeared, and that of the thigh had diminished. After this, however, the œdema returned, and I advised that he should have the advantage of sea-air. He went to Ramsgate, and was there under the care of Mr. Henry Curling. One day I was hastily summoned there to see him, as he was in great alarm on account of sudden swelling of the other leg and thigh. For some weeks at this stage both lower extremities were greatly swollen, and he was wholly confined to bed.

On Sept. 10, Mr. W—— returned from Ramsgate. Whilst there he had much improved in health. During the last fortnight of his stay he had omitted the iodide of potassium, and without any relapse of his nerve symptoms. He had been three months there, and during the greater part of the time had been able to get out in a Bath-chair, but not to walk. At one time, about a month before his return, the swelling had wholly disappeared from his right leg, and after he had been a fortnight free from it, it again suddenly returned. On one occasion some large patches of erythema appeared on the left leg; he had also had great irritation in the skin of the legs. His condition at the time of his return was as follows: Both lower extremities very greatly swollen, below the knee distinctly œdematous, so as to pit deeply, but above the knee hard and brawny; some congestion of patches on the left side, and a number of spots, probably the result of scratching. The swelling ended at his hips, and the upper part of his trunk was quite free from it. On the lower half of his abdomen, in the subcutaneous tissue, several hard cords could be felt. These could be traced in some places for six or eight inches in length; they appeared to be as large as crow-quills. The question was, were these lymphatics or veins? No discolouration over them could be detected, but he told me that some weeks ago the skin had been red. Their great hardness, and the knotted unevenness of their surface, seemed to me almost conclusive as to their being lymphatics, and against the conjectured existence of phlebitis. I must note that none of the superficial veins, either of the thighs or abdomen, were visible, nor could I detect anything peculiar along the course of the veins in Scarpa's triangle. We must, however, make some allowance, in respect to the latter point, for the brawny condition of his thighs, which prevented more accurate examination. I cannot believe that phlebitic thrombosis could cause such persistent œdema of the legs without being attended by enlargement of the collateral channels, and of this there was not the slightest trace.

As Mr. W—— was naturally anxious at the protracted duration of his symptoms, I suggested a consultation with Mr. Hilton. We met on Sept. 14. Mr. Hilton agreed with me that the enlarged trunks felt in the abdominal wall were lymphatics, and not veins. After this Mr. W——'s symptoms continued to improve. In the course of a fortnight he could walk about, though the limbs were still somewhat swollen. During October some cord-like lymphatic trunks again appeared on the inner side of his right thigh, where they had been noticed in the first instance; but they had subsided in a week or two. In the beginning of November, 1871, the lower extremities had almost returned to their former size, and he was going about moderately. He was still unable to put his boots on, and wore loose cloth ones. The network of lymphatic trunks which had been for so long present over his left hip could only be felt here and there. A brawny condition of the backs of his thighs and soft œdema of the ankles, etc., had been his last symptoms.

As regards treatment, we had been giving him a rather active saline diuretic throughout. It had agreed well with his stomach, but had not produced any material diuresis. It is very possible that it had no share in the cure; but I may note that, when, after our consultation, we substituted it for a few days by the chlorate of potash, the legs swelled more. Mr. W—— throughout spent his time on a couch, with the feet elevated so as to be much higher than his trunk. We had his bed lifted in a similar manner. Whilst the legs were at their worst he got no benefit from bandaging; it was tried on several occasions, and each time laid aside, as it irritated the skin and produced local swellings. When, however, œdema of the ankles and feet was the only remaining symptom, we used bandaging at night with benefit, disusing it in the daytime.

November, 1872. Mr. W—— is in good health, and able to take exercise freely. I cannot, however, assert that he is wholly free from œdema about his ankles. I have never seen him without some slight evidence of pitting, and if he falls out of health it increases. He still takes tonics frequently, and has had every advantage which change of air and long residence at the seaside could give. The fact that his œdema still persists may, I think, be instructively kept in mind when we have to investigate some of our other cases in which implication of the lymphatics was not proved. In Mr. W——'s case there can, I think, be no reasonable doubt that lymphatic obstruction was the chief cause of his symptoms.

August, 1876. The above report as to Mr. W——'s health and the local condition will still apply. He is obliged to wear elastic stockings, but is otherwise well.

In January, 1872, I saw, at the request of Mr. Disney Thorp, of Malden, and in consultation with my friend Mr. Abernethy Kingdon, a gentleman whose case in some features resembled that of Mr. W——. Our patient was sixty years old, tall, and rather stout. He had been accustomed to take a great deal of exercise, and had several times had his legs bruised.

Eighteen months before I saw him he had suffered from what was considered to have been phlebitis of the deep veins of the left leg, which caused œdema, which persisted for a long time. At length it passed off almost completely, and after an interval his right leg began to suffer in a similar way. When I saw him his right leg was considerably swollen, and his left scarcely at all; and I could not but be struck with the resemblance of his history to that of my patient Mr. W——. Had it really been phlebitis? I could find no corroboration for this suspicion, for the superficial veins were not in the least enlarged. I must admit, however, that I was equally unsuccessful in proving any implication of the lymphatics. After his return home our patient made a perfect recovery. In November, 1872, Mr. Thorpe wrote to me that he was quite well, and able to hunt and shoot as usual.

I show you a photograph representing the state of legs in a man who was under care for a short time in this hospital about a year ago. You will see that the œdema is wholly confined to one leg, which is increased to at least twice the size of the other. The skin was somewhat thickened and hypertrophied, but the main cause of the swelling was œdema. He had suffered from the affection for several years, sometimes better and sometimes worse, but never well. There was no evidence of venous obstruction. We took him into the hospital, kept him in bed, and bandaged his leg, and in the course of ten days he was so much relieved that he insisted on going out. He said that on several former occasions he had obtained great benefit in a similar way, but that it was always merely temporary. His general health was good, and he attributed the attack, if I remember rightly, to a bruise.

I have next to mention two cases which may, I think, be very suitably compared together. One of them I shall be able to show you, as she is at present in the hospital. The other, whose case I will narrate first, is a young lady whom at intervals I have seen occasionally during the last five or six years. She is a patient of my friend Mr. Square, of Plymouth. Her age is about twenty-four, and she has suffered from her remarkable malady for the last ten years. Both legs are affected, and are in the condition of smooth elephantiasis; both forearms are also, though in a much slighter degree, enlarged in the same manner. Her feet are comparatively little involved, owing, probably, to the support given by her boots. The hypertrophy above the tops of the boots is very great, the legs being at least twice their natural thickness. This statement applies to her condition when I first saw her. In August, 1871, when I visited her in Plymouth, the state of things was considerably better, although it had then, she said, somewhat relapsed. One and the principal measure of treatment had been to send her to a more bracing air. During an eighteen months' residence in Scotland her general health had been very good, and the size of her legs had very much diminished. After a few months' resumed residence in Plymouth, she again began to feel weak, and the elephantoid condition began to increase. We had, of course, attended carefully to bandaging the legs, and tonics in various forms had been administered during long periods. A remarkable fact in this case is that Miss ——'s mother and grandmother had, as I was informed, both suffered from a similar disease in girlhood, and in both got rid of it as they advanced in years. None of Miss ——'s brothers or sisters had shown any tendency to it. Miss ——'s mother spoke in the strongest terms of her own experience of the relaxing effects of Plymouth air, stating that she, like her daughter, never felt well except when in a more bracing climate. In India, where smooth elephantiasis is common, it is generally met with in the natives of valleys which are damp and warm.—*Lancet*, August 26, 1876.

HOSPITAL NOTES AND GLEANINGS.

Œdema Glottidis from Drinking Boiling Water; Tracheotomy; Recovery.—A healthy boy, æt. 5, was admitted into Westminster Hospital on September 30, at 3.30 P. M. Two hours before, he had sucked some boiling water from the kettle on the hob.

On admission, the boy's lips were blanched and blistered, his tongue was swollen, and the uvula and tonsils were also swollen—the former looking watery and semi-transparent from the exudation of serum into its tissues. At that time his breathing was tranquil, but it gradually became stridulous. By 7.30 it was markedly so, and there was then retraction of the lower regions of the thorax and decided dyspnœa. At eight o'clock he had a sudden accession of dyspnœa. He jumped up, grasped his neck, gasped for breath, and became quite tallowy in colour. In this emergency tracheotomy was immediately called for, and as there was no time to send for the surgeon, the operation was performed by Mr. Cane. Boy chloroformed. Incision about two inches. Isthmus of thyroid probably divided. Spouting from one small artery secured by bull-dog forceps; subsequently the vessel twisted, and gave no trouble. There was also very slight venous bleeding, but nothing which required ligature. Bivalve tube used, and a fenestrated inner tube. The boy's distress was immediately relieved. He was placed in a separate ward, a blanket awning was placed over the upper part of his bed, and vigorous steaming was kept up. He slept well. Some frothy mucus escaped from the tube during the night.

Oct. 1. Respiration natural. Frothy mucus still escapes from the tube. Temperature 101°; pulse 120. He has swallowed some iced milk and sucked a little ice. Tongue and fauces not so swollen as yesterday.

2*d.* Tracheal wound satisfactory. Tongue less swollen. Large white patches of shedding epithelium appearing on it. Temperature: morning, 100.2°; evening, 100.5°. Has had one ounce of brandy in twenty-four hours, in addition to iced milk and beef-tea.

3*d.* Whilst the inner tube was removed for cleansing, and some fresh tapes were about to be applied to the bivalve outer tube, the latter was suddenly coughed out, and the boy had severe dyspnœa. Quiet again after reintroduction.

10*th.* Tracheal wound, etc., satisfactory. Tube corked to-day for the first time. There was a little noise, but no distress and no recession. For the last three days temperature has been 99°. Boy's tongue and fauces are quite healthy now; he is looking pale and wasted, though he continues to take his food well. Steaming continued, but curtain removed.

14*th.* Tube finally removed.

From this time the boy became rapidly convalescent. The external and tracheal wounds healed without any trouble.

Remarks.—From the swelling of the fauces and the destruction of epithelium of the tongue, there is no reason to doubt that the boy did get some hot water into the back of his mouth. The stridor and dyspnœa, which were very carefully watched for, and which became marked five hours after the accident, were probably due to œdema of the arytæno-epiglottidean folds. This œdema might have been caused by extension from that of the fauces; but, coming on so soon, was more likely due to contact of hot water actually swallowed. It is instructive to notice that at no period in this case was any membranous exudation formed. Mr. R. W. Parker has shown[1] in a summary of such cases that membranous exudation is by no means a common phenomenon in scalds of the glottis; and he has raised the question whether the occurrence of membrane is not due to the entrance of the specific diphtheritic poison over and above the inflammation following the scald. The boy's life was doubtless saved by the promptitude with which tracheotomy was performed. With a mechanical obstruction—which, practically, this amounted to—emetics would have been perfectly useless; and probably leeches, scarification, and ice-bags to the neck, would have been inadequate. The operation showed what surgeons are now familiar with—that the fear of cutting through the isthmus of the thyroid is a bugbear. The result was so satisfactory that it seems almost ungracious to ask whether the tube could not have been removed sooner, and so prevent the risk (especially with a bivalve) of ulceration of the trachea. The question of vigorous steaming is still a disputed point in the after-treatment of tracheotomy. Sir William Jenner believes in gently steaming the room, but not steaming the bed. It is certain that tracheotomy cases have made capital recoveries without any steaming at all, especially where there has been no membranous exudation. But if there is membrane formed, steaming probably promotes a mucous discharge, and facilitates the removal of the membrane.—*Med. Times and Gazette*, Nov. 18, 1876.

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[1] Clinical Society: "Scald of the Glottis, with Membranous Exudation." 1875.

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Dislocation of Femur upon Dorsum Ilii reduced by Manipulation.—A strong, muscular man, who had fallen 24 hours previously and dislocated his right hip, was brought before the clinical class of Bellevue Hospital. The patient resting pretty fairly upon his back, Dr. F. H. Hamilton, standing upon the right side of the patient, *first*, took hold of the dislocated limb (which was large and powerful), by placing the palm of his left hand under the knee, and grasping the top of the ankle with the right hand. The leg was brought to a right angle with the thigh, and the thigh flexed to a right angle with the body—the whole limb being still in a position of adduction and inward rotation. When the thigh reached the position of a right angle with the body, there was evident resistance, indicating that it could be carried no further in this direction without the application of considerable force. *Second*, the thigh was abductod moderately, or as far as it could be carried without force. Attention was called to the fact that even this amount of abduction was impossible when the thigh was in the position which it occupied before the manipulation was commenced; but the abduction did not exceed eight or ten degrees, and was not sufficient to elevate the thigh to a perpendicular line—indeed it was considerably short of this position. *Third*, the whole limb was rotated outwards; and here was the first point of delay in the process of manipulation. During a few seconds no further progress was made toward reduction; but the position was steadily maintained by continued forcible rotation outwards. Dr. Hamilton remarked that he felt no yielding of the bone; but this observation had scarcely been made, when the head suddenly slipped into its socket, and the limb fell, with a peculiar oscillating motion, upon the table, parallel with the sound limb.

Dr. H. remarked, "this method is probably very old. Hippocrates described very briefly how we might sometimes reduce a dislocation of the thigh, by bending the limb at the joint and making rotation; and many other surgeons, from time to time, have, more or less perfectly, described this mode of reduction; yet it was so little known to surgeons generally, that even Sir Astley never alluded to it in his Treatise on Dislocations and Fractures near the Joints, nor in any of his other writings. Professor Nathan Smith, of New Haven, practised this method; and in the volume published by his son, Professor N. R. Smith, of Baltimore, the method is described with great fidelity, and is illustrated by drawings. Notwithstanding all this, to the late Dr. Reid, of Rochester, N. Y., the profession and the world are indebted, mainly, for our present knowledge upon this subject; since he again drew our attention to it, and succeeded in demonstrating, to the complete satisfaction of all, by a number of cases, its great superiority over every other method. When, however, he was reminded that Dr. Nathan Smith had described and practised the same method, that many others had done the same, and that he could not, therefore, claim, strictly speakly, the original discovery, he refused to concede this point; claiming that Nathan Smith had directed the limb to be carried up abducted, which, he affirmed correctly, was impossible; but he evidently misunderstood Dr. Smith, who had only said that the thigh must be *slightly* abducted, by pressing the knee outwards while it was being flexed; and this advice was given in order that the head of the bone might be kept near the posterior lip of the acetabulum. This may be, and we think it is, unnecessary, but it does not affect in any way the principle of the reduction.

"I wish to call your attention again to

the fact that, in effecting reduction, the thigh was only moved in those directions in which it could be easily moved. It could not, at first, be abducted or adducted, or extended. In all these directions it was nearly or quite immovable. It could, however, be flexed easily to a right angle with the body; and this was the first thing done. Dr. Read declared that the thigh must be flexed until the knee touched the belly; but I have never found this degree of flexion necessary, except in old dislocations. Nor is it proper, in recent cases, to make this extreme flexion, unless moderate (right-angled) flexion has failed, since it increases the laceration of the capsule, renders liable a displacement of the head of the bone into the foramen thyroideum, and endangers a fracture of the neck of the femur. When the thigh-bone had arrived at a right angle with the body, a slight abduction became practicable; and now the head of the femur, situated behind the acetabulum, was ascending the inclined plane towards its posterior lip or margin. Steady and forcible rotation outwards, of the knee and thigh, finally carried the head into the socket. This might have been facilitated by lifting the knee, or by a slight rocking motion, as first described by Nathan Smith; but neither of these aids were described in this case."

Before the patient was removed, a small pillow was placed between the knees and the legs loosely tied together, to prevent a re-luxation.

On the fourth day afterwards the man walked without limping, and declared he felt no soreness or pain in the thigh.—*Medical Record*, Dec. 2, 1876.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

Yellow Fever in Savannah.—We have been favoured with a copy of the *Savannah Morning News*, of Nov. 28th last, which contains a record of the interments from all diseases which took place during the months of August, September, October, and November. We extract the following condensed summary.

	Total Deaths.	Yellow Fever.	Other Dis.	Whites.	Blacks.
Aug.	172	33	139	91	81
Sept.	783	556	227	575	208
Oct.	474	287	187	301	173
Nov.	145	64	81	91	54
Total	1574	940	634	1058	516

There is, besides, a record of the deaths of 22 persons who died in the city and were buried elsewhere, or who contracted this disease in Savannah, but who died and were buried elsewhere. The great mortality from other diseases than yellow fever is remarkable, and may be partly accounted for by the suggestion that some of the deaths attributed to other diseases were really due to yellow fever.

The manner in which the disease was introduced into Savannah has not been satisfactorily shown; by some it is supposed to have been introduced directly by vessels from Havana, by others indirectly from Brunswick. Dr. Geo. H. Stone, of the Marine Hospital service, in his report to the Supervising Surgeon at Washington, does not satisfactorily clear up this point. He gives us, however, the following facts:—

"The Atlantic and Gulf Railroad wharf is situated on the river to the northeast of the city. The immediate surroundings are lowlands, most of which are under dry culture. The earth which makes the wharf is ballast that has been unloaded from vessels at this point. The first cases of yellow fever during this epidemic all point in this direction, and I am firmly convinced that the disease started from this location, whether imported there or not." . . . .

"It has been the custom of Spanish vessels arriving at this port to take a cargo from Spain or New York to Havana. After discharging the cargo the vessel takes in her ballast, the soil of Havana or vicinity. This soil, from the hotbed of yellow fever, is spread upon the river front of the Atlantic and Gulf Railroad wharf. Is it not probable that this ballast (which is composed of soft rock and sand) may contain the deadly poison in its embrace, to be developed and propagated when the climatic influences are favourable to its growth?"

In commenting on the type of fever he remarks: "Black vomit has not been necessarily a fatal symptom, many cases with this symptom having recovered. Vomiting of blood in large quantities has not been uncommon; blood and black vomit by stool has been observed; dark-green and black urine has been noted; yellow urine and dark-red urine was very common. In fatal cases, abundance of albumen was found by me in the urine; albumen in the urine has not, however, been a constant symptom; the body was always yellow after death, and the liver invariably presented the peculiar box-wood colour."

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Yellow Fever in Baltimore.—The editor of the *Baltimore Physician and Surgeon*, in his number for November last, states that "The recent epidemic of fever that visited the southeastern section of Baltimore, contiguous to the water-line, about the middle of August, and continued for a little over two months, was certainly *yellow fever*." "We believe," he adds, "that nearly every physician who saw the disease concurs in the above opinion; and some of them, we are informed, invariably assigned yellow fever as the cause of death in their burial certificates; but these cases were as invariably suppressed in the published weekly reports from the Health Office."

This deception is attempted to be justified on what appears to us to be very unjustifiable grounds.

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The International Congress and what is said of it.—The reports of the delegates from the Royal Medical and Chirurgical Society and of the Pathological Society of London have reached us, and from them we make the following extracts:—

The delegates of the Royal Medical and Chirurgical Society of London reported (*Lancet*, Nov. 25, 1876) that "although scientific gatherings so constituted often find it difficult to sustain the due state of philosophical abstraction from competing social attractions, the meetings were marked by the most earnest and steady attention to the business throughout."

"Judged by the elevation of tone, and ability displayed in the addresses, by the selection of topics for discussion, by the learning and masterly grasp by which the memoirs were distinguished, by the numbers and prominence of the men who led the discussions, and by the scientific yet practical value of the results, the great Medical Congress of Philadelphia must be pronounced a splendid success, deserving to be remembered as an epoch, not alone in American, but in cosmopolitan medical history.

"All this, knowing as we do the great position held by our American brethren in the medical world, might have been predicated with confidence. It may seem superfluous for us to say it, but strong feelings will have utterance. We cannot refrain from expressing our admiration for the completeness and harmony of the conception and design of this Congress, and for the strength of purpose and working skill with which the whole was carried out to the full realization.

. . . .

"We cannot conclude without attempting to convey to you, Mr. President, and through you to the Society which it was our good fortune and privilege to represent, how warmly we appreciate the unceasing exercise of all those marks of thoughtful kindness and consideration so grateful to visitors in a strange country, which were so successful in making us feel we were at home, and which contribute so much to make up a store of pleasant memories."

The delegates of the Pathological Society of London conclude their report to the Society (*Lancet*, Nov. 25) with an expression of the increased admiration the delegates had gained for their American brethren, "whose zeal, intelligence, and energy are only equalled by their warmth of reception, and their unbounded hospitality." The report was ordered to be printed in the *Transactions* of the Society.

The following extracts from the medical press correctly represents, so far as we can learn, the verdict of the profession in this country:—

"The meeting of the International Medical Congress was in every respect a most gratifying success. The Congress was representative of some of the highest professional talent of the most civilized nations of the globe, and the proceedings were marked throughout by harmony and good feeling, and by a determination to make the best possible use of the few days devoted to friendly business intercourse. The good results of the Congress cannot be estimated by the actual work done during the session, large and satisfactory as it was. For many years to come the personal association of so large a number of distinguished members of the profession will exert a benign and stimulating influence on every department of medicine and surgery, and be the means of disseminating broader and more liberal views among the rank and file of a class of hard-working men, whose calling is, of all others, the most thoroughly cosmopolitan in its aims and aspirations."—*New York Medical Journal*, Oct. 1876.

"The Congress was a superb success.

"It was the most successful, earnest, enjoyable, and, above all, the most scientific medical gathering which ever met in America. The addresses have been worthy of their distinguished authors, and the papers and discussions have enriched science. The tone of the meetings has been scholarly and dignified. We feel that the physicians who designed it may well be proud of their celebration of our national anniversary."—*Boston Medical and Surgical Journal*, Sept. 14 and 21, 1876.

"Undoubtedly this was the most important of all medical assemblages that have ever been held on this continent. . . . An impression is left behind that will profitably influence medical opinion and practice here for a long series of years."—*Virginia Medical Monthly*, Oct. 1876.

Medical Graduates in California.—At a commencement of the Medical Department of the University of California, on the 1st of Nov. last, the degree of M.D. was conferred upon twenty candidates, and at a commencement of the Medical College of the Pacific upon twenty candidates.

FOREIGN INTELLIGENCE.

Chorea Minor treated successfully by Means of Injections of Hydrate of Chloral.—Drs. Goltz and Auger give the details of an obstinate case of chorea minor in which eserin and the subcutaneous injection of morphia had been tried without success, and in which they determined to try the effects of clysters containing chloral hydrate. This drug cannot well be employed by subcutaneous injection on account of its tendency to produce local irritation, whilst when taken in the form of syrup it occasions nausea; when injected into the large intestine, it does not produce any remarkable sensation of burning nor any secondary symptoms. They commenced with the administration of 45 grains of chloral twice a day in the form of an enema. Only slight improvement occurred at first, and they increased the dose to 60 grains twice a day. Under this treatment complete recovery took place in fifteen days, which was not followed by any relapse.—*Practitioner*, December, 1876.

On the Treatment of Pityriasis Capitis by means of Solutions of Hydrate of Chloral.—M. L. Martineau (*Bull. de Thérap.*, xl. p. 39) employs a five per cent. solution of hydrate of chloral in pityriasis capitis, one or two teaspoonfuls of the fluid being warmed and applied by means of a sponge. It should be well rubbed in, and the skin should not be dried. The itching and desquamation soon cease. It is advisable to continue the application every day for a month. When the disease is complicated with erythema or papular eczema, he adds five per cent. of the liquor hydrargyri bichloridi to the above fluid, and after the complication has passed off he returns to the simple chloralized solution.—*Practitioner*, December, 1876.

Internal Applications of Tincture of Eucalyptus in Gangrene of the Lungs.—M. Bucquoy states (*Med. Chir. Rundschau*, April, 1876) that whilst he has been unable to corroborate the favourable results obtained by others from the action of the tincture of eucalyptus in catarrhal conditions of the bronchia, and in bronchorrhœa, he must nevertheless recommend it on account of its stimulating and disinfecting qualities in gangrene of the lungs. During the past five years he has had yearly from two to four cases of gangrene of the lung in his hospital at Cochin, and of these five cases recovered. Even in the fatal cases it improved the smell of the breath and sputa, and the cough became milder and less constant. One case treated for two months was cured. The croupous destruction of the lungs was here limited by slight pleurisy. The dose is half a drachm.—*Practitioner*, December, 1876.

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Sudden Death after Thoracentesis.—The French physicians are equally puzzled with the English ones to explain in all cases the cause of sudden death after thoracentesis. At the meeting of the Society of Biology, on November 18 (reported in the *Gazette des Hôpitaux*, November 21), M. Leven gave the details of one of these cases, and showed, both from the symptoms and post-mortem appearances, that his patient had not succumbed either to pulmonary congestion, cerebral anæmia, or syncope. By elimination, M. Leven was led to attribute the fatal issue to a "bulbar irritation which had its origin in the irritation of the nerves of the lung, especially the vagus." This "reflex" explanation, it will be remembered, was one of the theories discussed in Dr. Cayley's case recently read before the Clinical Society; but in Dr. Cayley's case iodine injections had been used. M. Charcot, at the meeting above mentioned, referred to a patient the subject of gout, and who often, when seized with a cough, fell down as though struck by lightning. Another patient, also, who was subject to a cough which had no special character, suddenly fell down when the cough came on. In neither of these cases were there any signs of syncope or epilepsy. M. Charcot was inclined to regard such cases as a kind of laryngeal vertigo, analogous to Menière's vertigo, which has its starting-point in the ear. In this malady, according to Menière, there is first a sensation of a "strident noise," and then the patient falls with his face to the ground. M. Laborde stated that in dogs in which pleuritic effusions have been artificially induced, true epileptiform attacks may be brought on by injections into the pleura.—*Med. Times and Gaz.*, Dec. 9, 1876.

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Remarkable Case of Injury to the Head.—Dr. **Barlach** relates the case of a boy, twelve years old, over whose head the wheel of a wagon had passed, but who then got up and walked beside the horses. He did not suffer much pain, but felt faint, and as if something were projecting from the head. A cloth was wrapped round his head, and he was conveyed in a wagon to Dr. Barlach's residence, who saw him about an hour and a half after the accident. He was quite sensible, and had his face and head covered with dried blood. The head having been cleansed, under chloroform, it was found that the right half of the frontal bone had become separated from all its connections, being held on to the left half only by the clotted blood and hair and some shreds of periosteum. The portion of bone measured nearly nine centimetres and a half. The dura mater was uninjured, but covered with blood, small stones, straw, etc. It is to be observed that during the inhalation of chloroform the pulsations of the brain became remarkably stronger, and all the vessels that were visible assumed a very dark appearance. The scalp was brought over the exposed parts, and the ensuing suppuration treated by drainage. Febrile action continued during the first two weeks, after which all did well, the lad having quite recovered by the end of January, the accident occurring in October. His intellectual faculties have undergone no alteration, and he suffers little inconvenience from the defect in his skull. —*Med. Times and Gazette*, Nov. 18, 1876, from *Allg. Wien. Med. Zeitung*, Sept. 26.

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Emphysema of the Skin during Parturition.—Dr. P. **Alekschieff** mentions in the *Russisch Med. Rundschau*, Bd. 2, 1876, a rare complication of parturition which he observed at the obstetrical clinic of Moscow in a primipara, twenty-four years of age. During the application of forceps, rendered necessary by a contracted pelvis, a tumefaction of the skin of the neck was observed above the right clavicle, and this tumefaction increased largely during the uterine contractions. There was observed an intumescence of the face, and especially of the palpebræ, the neck, and the upper portion of the thorax. This swelling constantly increased, and a manifest crepitation could be felt with the finger. Nothing particular could be perceived in the respiratory organs, except a certain weakness of the respiration of the right side. A live child was delivered with the forceps, and the emphysema disappeared in twelve days without any treatment. This case was due to the passage of air to the skin through lacerations of the pulmonary tissue, the result of intense muscular contractions.—*Med. Record*, Dec. 16, 1876, from *Lo Sperimentale*, August, 1876.

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Hydrophobia communicated by a Non-Rabid Dog.—Dr. MORITZ related to the St. Petersburg Medical Society the case of a boy who died with well-marked symptoms of hydrophobia six weeks after being bitten by a dog, the dog up to the time of the boy's death never having exhibited any sign of rabies. A similar case was communicated to him by a colleague, of a boy who also died hydrophobic after being bitten by a cat, the cat remaining to all appearances well. Dr. Severin had also met with a case of a child dying who had been bitten by a dog that continued well. He had inoculated rabbits with saliva, blood, and pus taken from this child, without producing any results.—*Med. Times and Gaz.*, Dec. 2, from *St. Petersburg Med. Woch.*, Nov. 11, 1876.

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Colour-Blindness among Railroad Employés.—With reference to colour-blindness, or the lack of power to distinguish colours, it is stated that very few of the persons so affected are conscious of the defect in their vision. Many railroad accidents are caused by the colour-blindness of railroad employés, and the Swedish Railway Direction has recently ordered an examination to be made by oculists of all the men in its employ, so as to guard against all danger. Professor Holingren, who has just examined the employés of the Upsala-Gefle Railway, found that, out of 266 persons examined, 18 were colour-blind, and so utterly unfitted for the railway service.—*Public Ledger.*

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Typhoid Fever in Paris.—Enteric fever has prevailed in Paris very considerably during the third quarter of the last year, the number of cases being double that of the mean rate of the corresponding period during the preceding four years, as shown by the report of M. Besnier. There was not only an increase in the number of cases, but also in their fatality. On the 11th of November, the mortality in Paris from typhoid fever was 171, against 59 in the preceding week.

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Death from Self-administration of Chloroform.—Dr. GUSTAV JUDELL, privat-docent and chemical assistant in Professor Leube's clinic at Erlangen, was on October 26 found dead in his bed. He had been accustomed to take chloroform at night as a remedy for sleeplessness, by which he was much troubled; and a bottle containing the anæsthetic was found near him. It appears that vomiting was excited by the chloroform, but that he was too deeply narcotized to eject the contents of the stomach, so that portions of the food remained in the œsophagus, and caused death by suffocation.—*Clinic*, Dec. 16, 1876, from *Brit. Med. Journal.*

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Iodide of Starch as an Antidote.—Iodide of starch has been employed in paste as a dressing in foul and syphilitic sores, but has been little used internally. Dr. Bellini, Professor of Toxicology at the Royal Institute of Florence, recommends it as a valuable antidote in some cases of poisoning, especially by alkaline and earthy sulphides, caustic alkalies, and ammonia, and the vegetable alkaloids for which iodized solutions are generally given. In poisoning by alkaline or earthy sulphides he believes it preferable to all other antidotes; in poisoning by caustic alkalies it is applicable when acid drinks are not at hand. Where iodized solutions of iodide of potassium are usually employed for poisoning by vegetable alkaloids, the iodide of starch should be used instead, as far less irritating. It may also be given in some cases of chronic lead or mercurial poisoning, and particularly to children in the form of syrup.—*Lancet*, Dec. 9, 1876.

Method of preventing Cloudiness on Exploring Mirrors.—M. SANUNDÈS, a medical student, communicates to *L'Union Médicale* (Sept. 23) a new process of preventing the laryngeal mirror from becoming obscure. This consists of passing lightly over the mirror a cloth steeped in glycerine. The watery vapour contained in the expired air is dissolved completely in the glycerine and the cloud does not form. He proposes the extension of all glass and optical instruments liable to become obscured by cloudiness.—*Med. Record*, Dec. 16, 1876.

Tuberculous Beef.—Our contemporary *The Field* has recently published some rather remarkable articles on cattle diseases. The last disease discussed is consumption, or, as it is more commonly called by cattle-breeders, "grapes." The frequency of this disease is deplored, and amongst the conclusions arrived at are, that it is hereditary, that it is capable of propagation by inoculation, but that it is by no means certain that it can be transferred by eating phthisis-tainted meat. For some little time we have been collecting information on this important subject, for it is a matter of fact that hardly 1 per cent. of the animals afflicted with tubercle are consumed as food. There is, in mild cases at least, no deception practised in the matter. Indeed, were tuberculous beef excluded from the market, 50 per cent. of the animals slaughtered would have to be condemned. This estimate is no exaggerated one; but it must be borne in mind that we are speaking of tubercle in any stage. Tuberculous disease is not confined to poor, worn-out, or half-starved cattle; it is remarkable that highly-bred fat cattle are peculiarly liable to it. In fact, if the fat beasts at one of our great shows were examined, the lungs of a great proportion of them would be found touched. It is in no alarmist or sensational spirit we call attention to this important question. If it can be proved that meat from an affected beast can convey the infection, then, at any cost, such meat should be condemned. Should such be the case, the advice most honestly and *bona fide* given by our excellent contemporary will not be reassuring. It is advised that an affected beast should at once be fatted and killed, as no remedy can be relied upon. At present, we will not controvert this advice, but only urge a thorough scientific inquiry into the whole question of cattle diseases and their probable effect on public health. The Public Health Act does not attempt to define unsound, or unwholesome, or unfit-for-the-food of-man meat. All is left to the discretion of the medical officer of health or inspector of nuisances. Indeed, no other persons can legally seize or order such meat to be seized and taken for magisterial decision. We swallow so many camels that it is sheer nonsense to strain at gnats; nevertheless, it ought long ago to have been scientifically and positively ascertained whether meat from beasts which are affected with lung-disease, tubercle, or puerperal fever could safely be eaten by human beings. Another and not minor branch of the same subject should also be settled, and that is as to the effect on the consumers of the parasitically diseased meat, of which such huge quantities are consumed daily. Any skeptic as to this last fact will easily be satisfied as to its truth if he will only inspect the first lot of sheep's plucks he may come across in his morning's walk.—*The Sanitary Record*, Oct. 21, 1876.

Cultivation of Ipecacuanha in India.—Experiment in growing ipecacuanha in India is said to have been very successful. A quantity of the dried root grown in Bengal was pronounced, after extensive trial at the hospitals in the treatment of dysentery, to be as effectual as the best South American drug. Quantities of ipecacuanha have now been sent to the Neilgherries, to Ceylon, and to British Burmah for trial, and those qualified to express an opinion are hopeful of success. —*Lancet*, Dec. 2, 1876.

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GENTLEMEN: Wounds of all kinds must, while you are surgeons, be the objects of your care. The one great question for you to solve will be, how least painfully, how the most speedily and most safely, you can assist or promote the natural process of healing.

Teachers, in text-books and hospital wards, differ very widely on the theory and practice of this fundamental part of surgery. I shall not attempt to enumerate their differences, much less either to confute or reconcile them. My present aim is to place before you the evidence of typical cases, in the support of what I believe to be the first and essential principles which should govern the practice of the surgeons in treating wounds.

I invite your attention to this little old gentleman, who has kindly attended here this morning for your instruction. He consulted me about two months ago for a cystic tumour, about as large as a hen's egg, in the right temporal region. The skin was very red, tense, and painful, and the hat, though a very soft one, was worn with much difficulty. After transfixing the growth vertically through the base, and peeling out the two halves of

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the cyst, with its bread-sauce-like contents, I dried the interior of the wound with a fine sponge. The edges were then very accurately approximated, and kept so with a few strips of lint soaked in styptic colloid. A few turns of bandage completed the dressing. When I removed it, at the end of five days, there was not a drop of discharge, adhesion was perfect, and afforded a simple but complete illustration of the surgeon's first intention in treating wounds—to secure direct union. All that is visible of the cicatrix is a very fine, pinkish line, extending upwards about two inches from the right ear.

Please to note—firstly, that the wound was thoroughly dried with a fine sponge; secondly, styptic colloid was used to keep the edges in contact; thirdly, the parts were not disturbed until the fifth day, when union was complete and solid.

Drenching wounds with water during an operation, and washing them with it afterwards, are mistakes. Water favours decomposition, which is the enemy of healing action.

The styptic colloid, used to keep the edges of the wound together, is the admirable preparation introduced in 1867 by my friend Dr. B. W. Richardson.[1] In removing the styptic colloid dressing common water should be scrupulously avoided, and a mixture of alcohol and ether employed, or equal parts of absolute alcohol and distilled water, warmed to a little above the heat of the body.

It has been noted that the dressing was not touched for five days after the operation. Once divided parts—be they hard or soft, bones or muscles, skin or nerves—are adjusted with a view to union, the less they are disturbed the better.

A case illustrating the same principles, though on a somewhat larger scale, is that of C. H——, aged forty-three, who was lately in Ward 5, whose right breast I removed on the 20th May, with a small hard gland from the corresponding axilla. Of the operation it only need be said that, according to my usual practice, I cut down upon the sternal origin of the great pectoral and dissected it clean, so as to make sure of thorough removal of the diseased mass. I am convinced that many so-called rapid recurrences of cancer are only growths of pieces left behind, and that *thoroughness* is the very essence of success in extirpation of malignant growths. After removal of the breast, the edges of the wound were neatly brought together by numerous points of silver suture, and dressed with a layer of fine cotton-wool and over it picked oakum. An evenly compressing bandage was then applied round the chest, and made to include the arm and hand in the flexed position so as to fix them immovably to the side. The first night the temperature rose to 101.3°, but it never rose afterwards above 100°.

The wound was first dressed at the end of the fifth day after the operation. A great part of it being healed by the first intention, a large number of the sutures were removed, and strips of adhesive plaster applied, so as to keep the edges in apposition; a pledget of oakum with a compressing bandage completed the dressing. On June 1st the remaining sutures were removed. The wound was then nearly all healed, and the same dressing applied. On June 3d (fourteenth day after operation) the entry on the card is "Patient dressed (as before), and sent home well."

The points in this case to which I wish to direct your attention are—(*a*) the numerous sutures; (*b*) the cotton-wool and picked oakum dressing; (*c*) the compressing bandage; (*d*) the rare dressing.

Metallic sutures so very rarely cause any irritation, that they may be inserted very near each other with impunity. Sutures far apart, with gaping intervals, are comparatively useless. If the cut surfaces are to adhere, they must be brought into contact and kept there, and for this purpose metallic sutures half an inch apart, or even less, are most efficacious. I often apply intervening strips of lint soaked in styptic colloid, but in this case only placed over the wound a layer of fine cotton-wool, and a pledget of picked oakum. The best cotton-wool for surgical dressings is that sold for jewellers in thin sheets, about eighteen inches by twelve, with alternate layers of tissue-paper. You will often see claims of priority for cotton-wool dressing. I do not pretend to say who first introduced it, but the credit of generalising its application in the treatment of a great variety of surgical injuries chiefly belongs to Burggraeve, of Ghent.[1]

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[1] Styptic colloid, as prepared after the instructions of Dr. Richardson, F.R.S., by Messrs. Robbins & Co., of Oxford Street, is produced by saturating ether entirely with tannin and a colloidal substance, xyloidine, or gun cotton, a little tincture of benzoin being finally admixed. (Vide D. B. W. Richardson in Medical Times and Gazette, 1867, vol. i. p. 383 et seq., "On a new Styptic and Adhesive Fluid—Styptic Colloid; and on healing by the First Intention" Also, by the same author, "On the Science and Art of Healing Wounds," in Transactions of St. Andrew's Medical Graduates' Association for 1871, London, 1872, p. 37 et seq., and MEDICAL NEWS, June, 1867, p. 81.)

It has been recorded that the breast case was only dressed three times, in the fortnight which elapsed between the operation and the patient's discharge, in accordance with the principle of infrequent dressing, of the minimum of disturbance to insure the maximum of rest, dwelt upon in the preceding case, and equally borne out by those to be presently brought to your notice. To the same end the smoothly and lighly compressing bandage round the chest very powerfully contributed. Of all surgical agencies none so beneficent as compression, none requiring more delicate manipulation, none so inadequately appreciated. Under a smooth and uniformly, while lightly compressing bandage, extravasations of blood are absorbed, the healing action is promoted, and a soothing influence is exercised. There must be no constriction —only equable adaptation of surface to surface with the light pressure which always comforts. There must be no squeezing like that of an old college friend's hand when seen after long absence; such pressure as that, if continued, is intolerable constriction. The soothing surgical pressure is like that which you interchange with the hand of a lady, the pleasure of whose meeting is tempered by the respectful regard which she inspires. Your hand adapts itself to hers, and gently presses it wherever it can touch it, but nowhere squeezes it for fear of offending. Such pressure as that, when employed by the surgeon in the treatment of injuries, always soothes and heals.

To apply a nicely compressing bandage well, you must practise hundreds and hundreds of times, bearing in mind that in surgical, as in all art, the greatest results are often obtainable from the simplest means, provided they be employed with the skill which can only result from the most patient assiduity.

These principles are illustrated by the two patients who have undergone amputations, and who are now before you.

I amputated the middle finger of this man's right hand in the course of my clinical lecture last week. As the result of old injury, the finger was bent and stiff, so as to be in the way. I therefore removed it at the metacarpo-phalangeal articulation, being careful not to wound the palm, and including in the elliptical incision so much of the covering of the phalanx as to admit of easy closure of the wound over the big knuckle. The edges were united by three points of silver suture, a fine drainage-tube placed in the lower angle of the wound, which was covered with a pledget of picked oakum; a moist pasteboard splint was now bandaged to the palmer aspect of the limb from the tips of the fingers to the elbow, and the forearm suspended in a sling.

This other patient, aged sixteen, was admitted to Ward 3, the 18th May ult., with his forearm crushed by machinery to within two inches of the elbow. As the bones were not split into the joint, I amputated just below it, utilizing some of the least damaged skin to cover it. Where the skin was quite sound the edges were brought together with two points of suture, elsewhere the parts were approximated with strips of lint soaked in styptic colloid, a drainage-tube being left in the lower part of the wound. The stump was covered with a layer of cotton-wool and oakum, and rectangular pasteboard splints were applied with gentle pressure to insure perfect immobility and prevent swelling. When the apparatus was opened four days afterwards, there was very slight sloughing of the margin of one flap, but the stump was of good colour and healthy temperature, without tension. The same dry dressing with pressure was applied, and the lad was discharged on the 17th of June, a month within a day from his admission, the stump then quite healed, having been dressed altogether seven times after the amputation.

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[1] Chirurgie Simplifiée. Nouveau Système de Pansements Inamovibles. Par le Dr. Burggraeve (avec planches). Bruxelles, 1853. Also, by the same author, Le Gènie de la Chirurgie. Gand, 1853, p. 25 et seq.

A parallel case is that of James B——, aged six, discharged the other day from Ward 6. The soft parts of his left lower limb had been extensively crushed by a wagon, and an attempt had been made to save the limb. Sloughing and profuse suppuration had been followed by such exhaustion that the lad might fairly be said to be moribund when I amputated the thigh in the upper third on the 22d of April. I dressed with cotton-wool, oakum, pasteboard splints, and nicely compressing bandages, and the lad was discharged with a sound stump and in good health on the 15th of June. In the forty-seven days which elapsed from the operation to his leaving the hospital the dressing was only renewed six times.

Not to go over the ground already trodden in commenting on the other cases, I shall only remark on the splints and the drainage-tubes employed in these amputations.

Coaptation of divided surfaces once effected, absolute rest is the first essential to the healing process. That rest is best secured, in the case of amputations, by moulding to the stump well-softened pasteboard splints, and fixing them with evenly compressing bandages. As in the case of fractures, the joint above the injury should be included in the splints, and great contributory benefit may be derived from the nice adaptation of sand-bags.

Of Chassaignac's drainage-tubes in the treatment of wounds it is impossible to speak too highly; but useful as they are after amputations, removal of tumours, and such-like operations, it is in such cases as this breast that their advantages are perhaps most conspicuous.

When this woman was before you last week, her pale, drawn face betokened suffering and exhaustion; the big, pendulous, and exquisitely tender left breast discharged matter through half a dozen openings, the result of post-partum mammary abscesses and linseed poultices. I passed a long probe from the lower aperture on the outer side, under the mammary gland, obliquely upwards and inwards, out at the uppermost aperture near the sternum. A ligature secured to the eye of the probe enabled me to carry a good-sized drainage-tube along its track, and I left it there with both ends depending, covering the breast with a good pledget of dry oakum, and suspending and compressing it with an evenly compressing bandage. The poor woman was easy at once, her appetite improved, and she slept well. When the dressing was removed, after a lapse of four days, the breast was soft and much diminished in size; the openings other than those traversed by the drainage-tube were healing rapidly, and the woman is now cheerful and rapidly convalescent.

Here is an equally successful case of a different kind, yet illustrating substantially the same general principles which should guide you in the treatment of all wounds. This youth is the son of one of our principal ivory and bone turners, who, while practising the other day with a fine circular saw, nearly cut off the soft pad at the end of the right thumb. He did not consult me until the third day, when the flap was swollen, and the wound dirty, the whole thumb throbbing and being very painful. On compressing the radial joint above the wrist, the throbbing and pain ceased, and I taught my patient how to obtain the relief by effecting the compression himself with the left thumb. I then brought the edges of the wound together with narrow strips of emplastrum elemi, leaving slight intervals for the escape of matter, covered the end of the thumb with a little fine-picked oakum, bandaged it so as to effect gentle uniform compression, and supported the hand at an acute angle with the arm, by means of a sling supporting the forearm and enclosing the elbow, as every sling, to be efficient, should do. Relief was immediate; the dressing was not touched for four days, and only twice afterwards, at intervals of three days. You see the thumb very nearly a match for its fellow, and a linear cicatrix is all that is left of the ugly wound.

This case illustrates, like the previous ones, the advantages of direct compression, with dry and rare dressings, in the treatment of wounds, and it further exemplifies the benefits to be derived from digital compression in the treatment of inflammation of the limbs.[1]

In proof of the statement that the same principles of treatment are applicable, whether the wounded parts be soft or hard, skin, bones, or muscles, or all combined, you have two very striking cases. This carter was brought into the accident ward with the scalp torn from the greater part of the right side of the head, and with two compound and depressed fractures in the parietal and frontal bones respectively. The large flap was cleansed, replaced, and united by eight points of suture, picked oakum and light bandage applied, and an ice-bag over all. The greater part of the wound united by the first intention. The cicatrix is now quite solid, and the man is doing his usual laborious work without ache or pain.

The last case which I shall now bring before you is that of a porter on the Midland Railway, who was brought to the hospital, a distance of fourteen miles, with the left femur literally smashed just above the knee-joint, a fully-laden coal-truck having gone over the limb. The soft parts were extensively torn, but both tibials pulsated, and I felt justified in the attempt to save the limb. Reduction effected and the edges of the wound approximated, a large drainage-tube was passed into it, and a pledget of lint, soaked in styptic colloid, placed over it. The limb was now accurately encased in a pasteboard apparatus from the crest of the ilium to the toes. The apparatus was not opened for ten days, and once a week afterwards. The man barely limps in walking, and is now doing duty as a signal-man at Selby cut. One and all these cases illustrate my favourite maxim, that REST, POSITION, and PRESSURE are the trinity of healing surgical graces.—*Lancet*, Dec. 23, 1876.

HOSPITAL NOTES AND GLEANINGS.

Large Retro-uterine Hæmatocele; Incision; Recovery.—A married woman, aged twenty-four, was admitted into the Queen's Hospital, Birmingham, under the care of Mr. JOHN CLAY, on August 29, 1876. She had three children, the youngest of which was twenty months old and was suckled until a month before admission. Her labours had always been good and without complications. Menstruation occurred at the end of a month after the last confinement, and appeared regularly afterwards. During her last menstrual period, about a month since, while engaged in washing the yard, she was suddenly attacked with a violent pain in the back, and in the hypogastric and right iliac regions, where the pain was most acute. She had frequent attacks of pain after this of a spasmodic character which were generally more severe during the night, and were accompanied with distressing dysuria. There was a free menstrual discharge during the whole of the month previous to admission. A fortnight before she had rigors, accompanied with nausea and vomiting, and was compelled to take to her bed. She then discovered a painful swelling on the right iliac region. This, according to her belief, gradually increased in size.

On admission she was anæmic and emaciated; the recumbent posture only possible; legs not drawn up. Abdomen tender on pressure. Pains in the regions previously mentioned. In the right iliac region there was a firm swelling of the size of a large orange. The upper border of this swelling was irregular, and could be traced in an oblique direction, running from the right iliac crest to the middle of the left groin. Below this line the abdomen was dull on percussion, and the swelling was nodulated, and the boundary-line of the latter was about an inch and a half from the umbilicus. There was a free vaginal discharge of a dark rusty colour. Per vaginam a hard rounded mass was felt completely filling Douglas's space, and pushing the uterus downwards and forwards, simulating in feel and size a gravid uterus of the fourth month in a retroverted condition. The sound was introduced into the uterus without difficulty. The uterus measured three inches, and was in its normal position. Per rectum the mass could be distinctly felt, and the bowel was pushed down in folds. Tenesmus and dysuria very distressing. Pulse 100; temperature 101°. Salines and opiates ordered.

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[1] Observations on the Treatment of Inflammation by Digital Compression, by Dr. Tito Vanzetti. On Treatment of Fractures of the Limbs, by Sampson Gamgee; London, Churchill, 1871; p. 168 et seq.

Sept. 5. There is an increase in the size of the swelling, and it feels firmer. The upper border is now felt to be on a level with the umbilicus. Abdomen tender on pressure. Pulse 98; temperature 101.4°. Quinine mixture prescribed; opiates continued.

9*th*. The abdomen is extremely tender and tympanitic. Peritonitis is obvious. The aspirator was used to the vaginal swelling, but only a little thick blood followed. Pulse 140; temperature 102.6°.

10*th*. Abdominal pain and tenderness increased. Knees drawn up; countenance anxious. Pulse 140; temperature 102°. Consultation convened, at which Drs. Heslop and Mackay and Mr. Clay attended, in reference firstly to the probability of the extravasation being due to tubal fœtation; and, secondly, as to the advisability of evacuating the extravasated blood per vaginam by a free incision into the tumour. The first question, after mature consideration, was not considered very probable, and it was deemed advisable to defer the latter.

11*th*. 10 A. M.: Patient states that she feels better. Abdomen, however, more tympanitic; no sickness. Pulse 132; temperature 103°. To take of acetate of morphia a quarter of a grain every four hours. Compresses wrung out in iced-water to be applied to the abdomen. Is decided to have a consultation in the evening. 7.30 P. M.: Patient much worse in every respect, vomiting and hiccough; abdomen enormously distended. Pulse 142; temperature 103°. It was determined to incise the tumour without further delay. Mr. Clay, with a guarded bistoury, made an incision of about one inch and three-quarters in length into the centre of the vaginal swelling. The finger was passed through this opening, and the clot broken up by this means; about two pounds of hard offensive clot and coloured liquid were removed. The cavity was carefully syringed with diluted Condy's fluid. The same quantity of morphia was prescribed with a small quantity of brandy every two hours. After the incision and syringing the boundary line of the solid mass was felt to be about two inches nearer the pubis.

12*th*. Patient has had two severe attacks of abdominal pain. After the operation a discharge of bright red blood continued to escape from the vagina, probably from a vessel in the incision, which was arrested by a plug introduced by Mr. Allen at 3 A. M. Urine and flatus passed in large quantity during the night. Tampon removed and cavity syringed out with diluted Condy. Temperature 103°; pulse 136. Morphia continued. Insufflation of the cavity ordered every three hours with salicylic acid.

13*th*. Bowels moved three times during the night; addomen very much diminished in size. Pulse 120; temperature 102°.

On the 14*th* a large quantity of dark offensive clots were removed by syringing the cavity with Condy's fluid, from which she felt much relief. The pulse and temperature daily declined until they became normal. No trace of fœtal development was discovered, although careful examination was daily made of the débris brought away by syringing. Salicylic acid was administered for several days in ten-grain doses with the best results. Quinine was afterwards substituted. By the end of the month she was quite convalescent, all traces of the abdominal hardness having disappeared, and the incision quite healed. She remained, however, anæmic, but with the use of tonic medicines and a generous diet she made a most rapid and permanent recovery. Menstruation had not occurred when she left the hospital for the Convalescent Institution.

In commenting on this case, Mr. Clay remarked that it was one of unusual interest, not alone for the special clinical features it presented, but as illustrating the mode of treatment to be adopted where large extravasations of blood into the cavity of the abdomen had taken place. Of late years the current of opinion has gone somewhat in the direction of leaving these large sanguineous extravasations to become removed by absorption aided by therapeutical measures. There are, of course, those who advocate surgical interference, and the favourable result of this case lends a powerful support to the adoption of this method of treatment in certain cases. There can scarcely be a doubt that in the progress of this case fresh extravasations occurred, which materially increased the size of the tumour. It might have been thought that the temporary increase of size was due to a distended bladder, but it is scarcely necessary to observe that this source of error was carefully guarded against. The opening of the tumour at too early a period of its development would probably have been a fatal mistake. The prudence of the delay sanctioned by the gentlemen engaged in the consultation in the first instance was shown by the fact that the peritonitis set up had completely encapsulated the clot, and thereby facilitated dealing with it after the tumour had been incised. There was no softening of the clot. The fragments which came away were firm, offensive, and dark-coloured, and to have delayed the incision would have insured the death of the patient. Another fact of importance is that the convalescence is considerably shortened. The employment of salicylic acid as a local antiseptic was only partially successful, in consequence of the large amount of blood to be acted upon, but its internal administration was marked with the best effects. The rapid diminution of temperature, pulse, and meteorism in the first twenty-four hours after the incision are worthy of prominent notice. The lesson which this and other similar cases had taught him was not to expect large extravasations to be removed by absorption. That such cases should not be interfered with surgically at too early a period is a safe proceeding, but that they should be watched, and, whether softening takes place or not, if the temperature and the pulse show extensive abdominal complications to be taking place, then at once to make an opening for the coagulated blood. The tolerance of such large continued doses of morphia is also worthy of note. The position and feel of the tumour on the right side of the abdomen lent a powerful impulse to the belief at one time that the origin of the extravasation was due to a rupture of a tubal pregnancy, but no traces of a fœtal development could be found. There was besides no history of shock, which generally occurs in such case, and this fact, together with the absence of certain uterine symptoms, was rightly held to negative the supposition.—*Lancet*, Dec. 2, 1876.

Rheumatic Fever treated by Salicylic Acid; Symptoms of Poisoning produced by the Acid.—The following two cases of rheumatic fever treated at the Radcliffe Infirmary, Oxford, with full doses of salicylic acid, are interesting, as showing a peculiar train of nervous symptoms which seem to have followed, and been caused directly by, the administration of the medicine. In both, the immediate effect of the acid on the rheumatic symptoms was remarkable—a rapid falling of the temperature and pulse-frequency, a speedy subsidence of pain and swelling of the joints, a cleaning of the foul tongue, and arrest of the sweating being observed. But in both alike, together with the satisfactory abatement of these symptoms, there came on a set of other symptoms, which may thus be summarized: Humming and buzzing in the ears, with gradually increasing deafness; a peculiarly loud, deep, and sighing respiration; a strange restlessness, gradually increasing to delirium, not unlike that of delirium tremens, with involuntary evacuation of urine and feces in the worst of the two cases; a slow and labouring pulse; an olive-green colour of the urine. All these symptoms declared themselves at the same time that a low temperature, a slow pulse, and an absence of all rheumatic appearances, showed that the disease itself was in abeyance. No sooner was the medicine withheld than the strange symptoms ceased, and the rheumatism returned. In the case related at length, the nervous symptoms were so alarming that Dr. TUCKWELL was afraid to return to the acid in treating the relapses, but blistered the joints after Dr. Herman Davies' plan, a treatment which he had followed out for several years. To compare the blistering with the salicylic acid, both alike seem to act quickly on the painful swellings of the joints; but, whereas the former does nothing more than this, and the rheumatic state continues its course unchecked, the latter seems to have the additional power of controlling the rheumatism itself, of lowering and keeping down the temperature and pulse, and relieving the sweating. At the same time, when given in doses large enough to effect this, the acid may develop certain unpleasant symptoms of its own, which in one of the cases to be related were rather alarming.

Case 1.—H. L——, aged eighteen, was admitted 29th Sept. 1876. He had had rheumatic fever when a child, but had continued in good health and at work till seven days ago, when he shivered, and was attacked with pain in the back and with painful swelling of the knees. On admission he was profusely sweating, with rheumatic odour. Both knees, both ankles and wrists, were acutely inflamed, swollen, red, and very painful; tongue thickly coated. Morning temperature 100.6°; pulse 108. Evening temperature, 101.6°. A blowing systolic murmur was heard at the apex, and a shorter systolic murmur at the base of the heart. Ordered to be bedded in blankets, to have no application of any kind to the swollen joints; milk diet; and to have a scruple of salicylic acid dissolved in three drachms of the solution of citrate of ammonia[1] every three hours, through the day and night.

Sept. 21. The pain had begun to yield at midnight, after four doses of the mixture. All pain and swelling of the joints were gone, and there remained only a little stiffness in the left knee; tongue cleaning. Morning temperature 101°; evening 101.6°; pulse 92. He complained much of thirst, and of buzzing in the ears, as if a hive of bees were over his head. The respirations were regular and slow, sixteen in the minute, but peculiarly deep-drawn and sighing, so that he could be heard breathing at some distance from the bed. Ordered to continue the mixture every three hours.

22*d.* All rheumatic pain, swelling, and stiffness were gone, and the sweating was much less: tongue clean. Morning temperature 100°; evening 100°; pulse 84. The loud breathing was even more marked. He had passed a very restless night, and was restless at the visit, complaining of the buzzing and of feeling light-headed. Heart-sounds unchanged. Urine of a marked olive-green tint; acid; no albumen. To continue the mixture every four hours.

23*d.* He was quite free from all rheumatic symptoms, but the same noisy breathing and restlessness continued. A patch of herpes had appeared on the lip. Morning temperature 99°; evening 99.6°; pulse 92. Urine olive-green; the colour not changing on the addition of nitric acid; no albumen.

24*th.* The same nervous symptoms, with the addition of marked deafness, were present. Morning temperature 97.6°; evening 97.8°; pulse 84. To continue half doses of the mixture, ten grains of the acid, every four hours.

25*th.* The breathing was so loud that it could be heard at the other end of the ward. He had passed a sleepless night. Morning temperature 98°, evening 99°; pulse 76. Heart-sounds unchanged. To continue ten grains every six hours.

26*th.* He had been sleepless and delirious throughout the night, trying to get out of bed. He answered questions properly, but then rambled off to some other subject. Breathing the same. Morning temperature 99.4°, evening 99.2°; pulse 62. To take 10 grains three times a day.

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[1] On the solubility of salicylic acid in a solution of ammonium citrate, see the Pharmaceutical Journal of July 15th, 1876.

27*th.* He passed a very delirious night, and had the manner of a person with delirium tremens. He had passed his feces and urine unconsciously. Breathing the same. No rheumatic symptoms. Morning temperature 99°, evening 100°; pulse 70, labouring. Urine olive-green, no albumen. To stop the medicine, and continue milk diet.

28*th.* He had continued in the same state till three o'clock this morning, when he fell asleep, and was still sleeping heavily at the time of the visit. Morning temperature 99.2°, evening 99.8°.

29*th.* He had slept the greater part of yesterday and all through the night, and awoke this morning quite quiet and sensible. His evacuations have since then been passed naturally. His breathing was quiet and natural. Morning temperature 99.4°, evening 99.8°; pulse 52, very labouring, and a little irregular. He was very prostrate, and could only speak in a whisper. Heart-sounds unchanged. Urine very faintly green in colour, neutral, no albumen.

30*th.* He was quiet and rational, and breathing naturally, but all the old rheumatic symptoms had returned. He was sweating profusely. The right knee, ankle, and left wrist were swollen and painful. Morning temperature 100°, evening 102.2°. Joints to be blistered. Effervescing citrate of potash mixture to be taken every six hours.

Oct. 1. The joints were much relieved by the blisters. No nervous symptoms. Morning temperature 100.6°, evening 101.2°; pulse 60. Urine natural in colour, 1028, no albumen. Heart-sounds unchanged.

3*d.* Another relapse of rheumatic pain and swelling in the left knee and left ankle, with profuse sweating. No nervous symptoms. Morning temperature 102.4°, evening 103°; pulse 72. Joints to be blistered.

From this time there was a gradual fall in the temperature and return to convalescence, no fresh nervous symptom of any kind having appeared from the time that the salicylic acid was discontinued, although the temperature rose higher and the affection of the joints was severer in the relapses than in the original outbreak.

In Case 2—that of a man aged twenty—the order of treatment was reversed, blisters being first applied, and afterwards, as the fever did not yield, salicylic acid being given in doses of a scruple every three hours. In twenty-four hours from the time that the first dose was taken, all pain and swelling were gone, the temperature and pulse had fallen, and the tongue was cleaning; but there followed just the same nervous symptoms as in the former case—deafness and buzzing in the ears, deep-drawn noisy breathing, restlessness, and at last delirium, with wakefulness and a desire to get out of bed. All these symptoms, which were not so severe as in the former case, ceased quickly when the acid was withdrawn, and did not return, although there were two slight relapses of the rheumatic fever, which were treated with the perchloride of iron.—*Lancet*, Nov. 11, 1876.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

Treatment of Fractures at the Pennsylvania Hospital.—Dr. JOHN B. ROBERTS, Resident Surgeon at the Hospital, gives (*Archives of Clinical Surgery*, Dec. 1876) the following account of the method of treating fractures employed at this institution:—

Fractures of the lower end of the radius, whether Colles', above the articulation, or Barton's, extending into the joint, are almost invariably adjusted by forcible extension, and then placed in a Bond's splint, with appropriate compresses to correct deformity. Bond's splint, as you know, consists of a box-like splint, in which the pronated forearm is laid, while the hand is deflected to the ulnar side, and the palm closed over a cylindrical block at the end. By this means the tendency to dragging up of the lower fragment is overcome, and the fingers are allowed considerable motion during the progress of the treatment.

When the humerus is broken, through or just above the condyles, an anterior right-angled splint is generally employed, but when the fracture is situated in the shaft, an internal angular splint, with possibly an external pasteboard one, is applied. If the seat of fracture, however, is near the anatomical neck, it is usual to use the thorax as a splint, and merely bind the arm firmly against the chest; should the upper fragment tend to fall into the axilla, it is kept in proper position by a pad placed in that locality.

The treatment that seems to give best results in fracture of the clavicle is the horizontal position in bed, with the head thrown a little forward to relax the sterno-mastoid muscle. When this line of treatment cannot be followed, the injury is dressed with a roller-bandage or adhesive strips, so arranged as to meet the indications.

Taking up fractures of the lower extremity, I speak of fracture of the fibula. This comparatively unimportant injury is placed in a fracture-box until swelling subsides, and then a fixed dressing of silicate of soda, or glue and oxide of zinc is adjusted to the limb.

Fractures of the tibia, or tibia and fibula, are placed immediately in the old-fashioned fracture-box with foot-board and hinged sides, which, in many instances, is then suspended, in order that the patient may move about in bed without disarranging the broken bones. Compound fractures, with abundant discharge, are kept covered with bran. In two such cases, recently admitted, there was so much overlapping and displacement of the fragments that Dr. Morton resected the ends, and, in one case, wired the bones together.

Although the fracture-box is generally employed, its use is not absolute. If the bones be broken at the ankle-joint, with lateral displacement, Dupuytren's splint and pad for fracture of the fibula are used. In a recent instance, where the line of fracture split off the external portion of the tibia, without involving the internal malleolus, and the fibula also was broken, there was great displacement backwards and outwards, which necessitated tenotomy of the tendon of Achilles and the application of Dupuytren's splint on the inner side of the leg.

Fracture of the patella has usually been treated by flexing the whole limb on the pelvis, and drawing down the upper fragment by adhesive strips and bandages. Recently, however, Dr. Morton has tried Malgaigne's hooks without producing any inflammatory trouble, and has obtained far more perfect apposition under their application.

Many cases of fracture of the femur are admitted, and are treated generally by extension, though one of the surgeons prefers Smith's anterior wire splint. The extension apparatus is applied by means of longitudinal and transverse strips of adhesive plaster, to which is attached an iron crib, or framework, containing any number of one pound weights. In some cases, instead of the plaster, a more expensive arrangement of leather straps and buckles is applied in a similar manner, and the weights attached to the foot-piece. The injured limb is then steadied by sand-bags or Levis's weighted splints, which consist of long narrow boxes, containing a row of bricks. Fractures through the neck of the femur, owing to the difficulty of making an absolute diagnosis of extra or intra-capsular lesion, are treated by extension for several weeks, until it is determined whether or not union is about to occur. In a case treated not long ago, the diagnosis of intra-capsular fracture was proved, not only by the treatment, but by the post-mortem examination made two or three months after the receipt of injury. There was not the least attempt at union, and the end of the head had been partially absorbed. The anterior wire splint is used by Dr. Hewson for fractures of the thigh, and sometimes of the leg, and, while controlling the proximal joints, gives the patient greater freedom of motion during treatment.

In regard to shortening after fracture of the femur, it may be said that but little importance is attached to the amount, and measuring is rather at a discount. By a series of measurements of normal limbs, made by Dr. W. C. Cox a few years ago, it was found that there was a considerable difference in many cases where no injury had ever occurred. In fifty-four cases accurately measured only six showed the same length in both limbs, while fifteen cases showed a difference of a half inch or more between the two legs. The smallest amount of variation was one-eighth of an inch, while the greatest reached seven-eighths of an inch *(American Journal of the Medical Sciences*, April, 1875). As this has been well established, it seems useless to become agitated over shortening of one-sixteenth of an inch after fracture of the femur, which, by the way, may make the limbs more uniform than they were previous to the occurrence of the fracture.

The plaster of Paris dressing is seldom used except in cases of delirium tremens, when a rapid setting and solidifying is required to keep the bones steady, and preclude the possibility of the injury being made compound. Solution of silicate of soda is always ready, is so clean, and is applied with such facility that it is generally preferred, notwithstanding the fact that it takes several hours to become firm. The glue and oxide of zinc dressing of Dr. Levis is employed quite frequently also, the latter ingredient being added in the proportion of one part to eight or ten of glue, in order to increase the rapidity of hardening. None of these forms of fixed dressing, however, are applied immediately, as done in New York, but the patient is confined to bed for a series of days until pain and tumefaction have subsided, and often until considerable union has occurred.

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The Caustics of Zinc.—Several physicians have consulted Dr. Squibb as to the best and safest manner of applying the chloride of zinc. The difficulty appears to be that the caustic cannot easily be limited to the part to which it is desirable to apply it; especially is this the case in respect of the application within cavities; for example, epithelioma of the cervix of the uterus, in which disease the chloride of zinc offers its best results. The excess of caustic gradually creeps down, comes in contact with, and plays the mischief with the vaginal walls; this takes place under the ordinary form of application by means of a pledget of lint, wet with a strong solution of the zinc, which is held in place against the diseased cervix by a tampon.

Dr. Squibb suggests, in the first place, that a less quantity of the caustic be employed, so that by its combining with the albumen of the diseased tissues, there shall be none to overflow upon sound tissues. Moreover, the upper layer of the tampon may be prepared with a carbonate of soda solution and allowed to dry before the application; the soda and excess of the caustic coming in contact, will re-combine and form a chlorinate, a sort of disinfectant. But the soda itself is an irritant, although not a caustic. It may be well to try carbonate of lime: dust the surface of the tampon, and thus disarm the zinc.

But, perhaps, better than these will be the use of the nitrate of zinc. It is less deliquescent, and very much more manageable than the chloride. Dr. Fisher has found it especially applicable within cavities. A hot, concentrated solution is made of the nitrate; into this a layer of cotton is dipped and then allowed to dry: the salt crystallizes in the meshes of the cotton, which can be adapted readily to the contour and irregularities of surface of epithelial growths and the like. This may be held in place by a tampon, which will absorb all excess of caustic.—*Proceedings of Medical Society of County of Kings*, N. Y., Jan. 1877.

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Deaths from Chloroform.—A case of this occurred at Rahway, New Jersey, on the 5th of January. A lad, aged 14, inhaled chloroform from a napkin prior to the extraction of a tooth. Immediately after the tooth was extracted there was a gasp for breath, a deep sigh, and the head of the boy rolled to one side and he was dead.

At a late meeting of the Obstetrical Society of Boston (*Boston Med. and Surgical Journal*, Jan. 11, 1876), Dr. Cotting remarked that since he came to the meeting an account of a case of death from chloroform during delivery had been shown him in the last number of the London *Lancet*, and stated that he had himself had, a number of years ago, a case in which death was probably due to the same agent. The patient was a primipara, aged twenty-two. The labour was going on well, and the head was apparently on the point of emerging, when the patient had a slight convulsion. Chloroform was administered, and, the pains returning after a while, the administration was repeated. The head was got away, and the uterus was contracting well, when a tremor occurred and the pulse ceased. The patient was dead. At the time of this occurrence there appeared to be no obvious cause of death; since then, as chloroform has been found to be frequently fatal, Dr. Cotting has been more and more of the opinion that death in this case resulted from the use of this anæsthetic.

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Scarlet Fever in Boston.—From an official circular of the Boston Board of Health, dated Jan. 9, 1877, we learn that scarlet fever is now prevalent in that city. The board gives notice that every physician must hereafter report to the Board of Health cases of scarlet fever which he may be called upon to attend, and every householder must also give a similar notice of the appearance of scarlet fever within his family. An additional order of the board prohibits any child from any family in which scarlet fever may appear from attending school until four weeks have elapsed since the beginning of the last case of such sickness.

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The Medical Society of the District of Columbia.—At the annual meeting held Jan. 1, 1877, the following officers for the ensuing year were elected: Dr. S. C. Busey, president; Drs. Garnett and King, Vice-Presidents; Dr. L. Magruder, Corresponding Secretary; Dr. Klienschmidt, Recording Secretary; Dr. Franzoni, Treasurer; Dr. Patze, Librarian; Drs. Murphy, Smith, D. R. Hagner, C. E. Hagner, and Triplett, Board of Examiners; Drs. Elliot, Antisel, and Morgan, Board of Censors.

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University of Pennsylvania.—Dr. J. T. ROTHROCK has been elected to the chair of Botany in the Auxiliary Faculty of Medicine, vice Dr. H. C. WOOD, who was recently elected to fill the chair of Materia Medica, made vacant by the resignation of Prof. Carson.

The Professorship of Hygiene in the same faculty, has recently been vacated by the resignation of Dr. HENRY HARTSHORNE, in consequence of removal to Union Springs, New York.

—

Changes in Medical Journalism.—With the beginning of the new year, we have to chronicle the establishment of two medical journals, as well as the demise of another.

Toledo Medical and Surgical Journal.—The initial number of this journal was issued on the first of January, under the editorship and proprietorship of JONATHAN PRIEST, M.D., of Toledo. It is intended to be a monthly periodical of thirty-two octavo pages, containing original communications, reports of societies, correspondence, and editorials. Its publication has been undertaken, the editor informs his readers, in the belief that the profession is not so supplied as to hinder the success of another journal. We trust that Dr. Priest's journal may develop the merit which always insures success.

The Quarterly Journal of Inebriety, the first number of which appeared on the first of December last, appears as the official organ of the American Association for the Care of Inebriates, and is offered as the exponent of its principles. The journal will contain the transactions of the Association, with various other contributions from specialists in this field. It is under the supervision and editorial control of the publication committee, of which Dr. T. D. CROTHERS, of the Binghamton Asylum, is Secretary.

The Clinic.—With the commencement of its twelfth volume our sprightly contemporary passes under the editorial control of Dr. ROBERTS BARTHOLOW, whose reputation foreshadows the ability with which its columns will be managed.

The first number appears in a new and improved dress, and the journal will be published as heretofore at Cincinnati on every Saturday.

Peninsular Journal of Medicine.—With the December issue this journal closed its career. The Journal, we are informed, has consolidated with the *Detroit Review of Medicine and Pharmacy*, which will be henceforth published under the name of the "Detroit Medical Journal."

OBITUARY RECORD.—Died in Philadelphia, on the 30th day of December last, aged sixty-eight years, JOSEPH CARSON, M.D., Emeritus Professor of Materia Medica and Pharmacy in the University of Pennsylvania.

During his long and distinguished career in the profession, Dr. Carson occupied many positions of honor and trust. He was for some years Professor of Materia Medica in the Philadelphia College of Pharmacy, and for subsequently twenty-six years Professor of Materia Medica and Pharmacy in the University of Pennsylvania. Among his contributions to medical literature in addition to numerous fugitive lectures may be mentioned his Illustrations of Medical Botany, published in 1847, his edition of Pereira's Materia Medica, and the History of the Medical Department of the University of Pennsylvania. At a later day we hope to present to our readers an appreciative biographical sketch of Dr. Carson.

At a meeting of the Medical Faculty of the University of Pennsylvania, held January 1, 1877, in relation to the death of Emeritus Professor Joseph Carson, M.D., the following minute was unanimously adopted:—

The Medical Faculty have heard with profound sadness of the death of their late colleague, Dr. Joseph Carson, who for twenty-six years occupied the Chair of Materia Medica and Pharmacy with a distinction and authority to which a life-long devotion to these branches of science entitled him. His complete mastery of his subject enabled him to give to each part of it in his lectures a due weight and proportion, and to impress his class with the soundness of his instruction.

Throughout his whole career he was beloved by the students for his kind and gentle manner, and the wise and affectionate interest he displayed toward all who sought his counsel, and especially to his private pupils, who, in after life, delighted to renew their acquaintance with their former teacher and friend.

In the medical faculty he was not less beloved for his simple, cordial, and sincere manners and his perfect truthfulness and directness of purpose, than he was respected for his loyalty to the school whose history, traditions, and capabilities he was best acquainted with, and for his desire to reconcile the exigencies of its position with its duties to medical teaching and to the medical profession.

His former colleagues can never forget their meetings, which were rendered cheerful by his social qualities and satisfactory by the wise discretion of his counsel.

Resolved, That the Faculty will attend in body the funeral of Dr. Carson on the 2d instant.

Resolved, That the Faculty tender their warmest sympathy to Dr. Carson's family in their bereavement, and that a copy of these proceedings be sent to them, and one also to the Board of Trustees of the University of Pennsylvania.

FOREIGN INTELLIGENCE.

Treatment of Scarlet Fever with Sulphur.—Mr. HENRY PIGEON, of Clifton, England, writes to the *Lancet* (Nov. 25, 1876) that "the marvellous success which has attended my treatment of scarlet fever by sulphur induces me to let my medical brethren know of my plan, so that they may be able to apply the same remedy without delay. All the cases in which I used it were very well marked, and the epidermis on the arms in each case came away like the skin of a snake. The following was the exact treatment followed in each case: Thoroughly anoint the patient twice daily with sulphur ointment; give five to ten grains of sulphur in a little jam three times a day. Sufficient sulphur was burnt twice daily (on coals on a shovel) to fill the room with the fumes, and of course was thoroughly inhaled by the patient. Under this mode of treatment each case improved immediately, and none were over eight days in making a complete recovery, and I firmly believe in each it was prevented from spreading by the treatment adopted. One case was in a large school.

"Having had a large experience in scarlet fever last year and this, I feel some confidence in my own judgment, and I am of opinion the very mildest cases I ever saw do not do half so well as bad cases do by the sulphur treatment, and, as far as I can judge, sulphur is as near a specific for scarlet fever as possible."

—

Transfusion.—An unexpected opportunity was afforded Dr. Roussel on Saturday last (the 9th inst.) of exhibiting his ingenious apparatus for the transfusion of blood upon a patient in the London Hospital. The case was that of a boy, under the care of Mr. James Adams, suffering from advanced disease of the hip, with evidence of amyloid changes in viscera, and œdema of the affected limb. It was decided to perform amputation at the hip-joint, and ether was administered and Esmarch's bandage applied. The patient, who was extremely prostrate and anæmic, lost no blood during the operation, but the pulse became extremely weak and small. Dr. Roussel happening to be present for the purpose of giving a demonstration of his apparatus to the students of the hospital, it was determined to take advantage of the opportunity thus afforded, and to perform transfusion at once. Accordingly, without continuing the operation after removing the limb and tying the arteries, Mr. Adams supplied six ounces of blood from his own arm to his patient on the table before him. The latter improved notably after the transfusion, the pulse becoming firmer and more full, but the pallor persisted; whilst the surgeon, with his arm bandaged after the venesection, proceeded on his way with the rest of the operation. We regret to learn that, although the lad rallied from the immediate effects of the operation, he succumbed two days after. —*Lancet*, Dec. 16, 1876.

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Death from Chloroform.—We learn from the *Medical Times and Gazette* (Dec. 16, 1876), that a death from chloroform took place at Charing-cross Hospital on December 8. The deceased was about to be placed under the influence of the anæsthetic to facilitate the application of the taxis for the reduction of a hernia. Very little chloroform had been given, when suddenly alarming symptoms showed themselves; and although the chloroform was stopped at once and restoratives were applied, death took place immediately.

—

A Ready Method of testing Urine for Albumen.—Mr. W. Henry Kesteven recommends (*Med. Times and Gaz.*, Dec. 23, 1876) the following method. Take a piece of thin glass, such as is ordinarily used for microscopical covers; about one inch square is the best size. On the surface of this, slightly to one side of the centre, place about two drops of the urine to be tested; on the other side of the centre place one drop of nitric acid. By gently inclining the glass the two fluids will mix, and any precipitate that is formed will be readily seen when the acid-fumes have passed off. The precipitate may be rendered more apparent by covering the reverse side of the glass with Brunswick black or some other such pigment. Another method of using the thin glass cover is one which will be found particularly handy for use at the bedside. The urine should be placed on the cover as above, and then, with an ordinary pair of dresser's forceps, the slip of glass should be held over the flame of a candle. By so doing the albumen, if present, will be precipitated, and rendered plainly visible by the blackening of the glass with the smoke of the candle. This last method should be practised with care, as, if the glass is held too close to the flame, violent ebullition of the urine takes place, with rapid evaporation. The value of the use of these thin glass covers for this purpose consists mainly in the ready way in which the urine can be tested by means of them. It is very easy to carry a few of them in the pocket-case for use by those who prefer the warm method of testing; whilst for those who prefer to test the urine cold with the acid, a box could easily be contrived which would carry one or two blackened covers and some nitric acid.

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Colour-blindness and Railway Service.—We are glad to learn, on the authority of Mr. Mason (*Lancet*, Jan. 6, 1877), that so much care is taken on most of the British railway lines to test the vision of the servants of the company. The testing itself is, however, or rather should be, a scientific affair. It cannot be hastily settled by showing a man a few pieces of paper and asking him to name the colours. Even in the healthy eye the extreme lateral parts are incapable of perceiving red. Objects of that colour, which are carried to a little within the verge of vision, suddenly become black, whilst they resume their red tint on being brought forward again, which is not the case with blue or green objects, and it is possible that the red-perceiving elements of the retina may have areas of distribution of different magnitude in different instances. The examination should be made with coloured glasses, and with the aid of a perimeter. We can hardly agree with Mr. Mason in considering cases of downright ignorance of the names of cardinal colours to be more numerous than those of Daltonism. He states that he found "a man, represented as colour-blind, called 'red' yellow, and 'green' red, quite able to appreciate them and small differences in shade of each of these colours, and who quickly became colour perfect by the same process as a school-boy learns the alphabet." We should have passed such a man as (in this respect) a trustworthy railway porter only after repeated trials, if at all. His new knowledge might have failed him at a critical moment, and he would certainly have been long in a state of confusion. The fact that different shades of the same colour can be distinguished is by no means uncommon, even in cases of well-marked Daltonism. In a recent work of some authority, Bernstein on the "Five Senses of Man," we observe that colour-blindness is stated to occur nearly in the proportion of one in twenty of the population. If this is based on good authority, it must be far more frequent in some nations and localities than in others; for, even granting that it is frequently passed by unnoticed at ophthalmic hospitals, or that the subjects of it rarely apply for relief, it certainly does not exist in anything like that proportion in England. Mr. Haynes Walton calls attention to the fact, otherwise well known, that colour-blindness may be acquired. An impairment of the power of distinguishing shades of colour is not uncommon in cases of amblyopia, from whatever cause this may arise; and, as Mr. Walton suggests, it would be well that periodical examinations of the capacity of officials in regard to perception of colour, on which so much of the safety of the public depends, should be made.

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Medical Society of London.—At a meeting of this venerable society held on the 6th of November last, it was unanimously resolved by the society "to exclude persons of the female sex from either becoming fellows of the society or from being introduced to it as visitors."

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Professor Valentin's Jubilee.—Professor VALENTIN, of Berne, the discoverer of ganglion cells and ciliated epithelium, celebrated the fortieth anniversary of his academical career on November 6, and was presented by the Medical Faculty with a congratulatory address and a bronze statue of himself. The Philosophical Faculty also gave him a doctor's degree *honoris causâ*.—*Med. Times and Gaz.*, Dec. 16, 1870.

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OBITUARY RECORD.—The celebrated naturalist, VON BAER, whose name is closely connected with the study of embryology, died on November 28, at the age of eighty-five.

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It will be seen from this that the scope of this work is not dissimilar to the well-known "Principles of Medicine," by Dr. J. C. B. Williams, now long out of print, which in its day met with such unusual acceptance. More practical in its character, however, it seeks to bring to the aid and elucidation of positive therapeutics, the vast accumulation of scientific facts and theories made by the present generation, pointing out the measures to be adopted at the bedside, and establishing them on firm rational grounds. Such a work, by a first-rate man, and fully up to the advanced condition of science, cannot fail to prove of the utmost service to both student and practitioner.

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HENRY C. LEA—Philadelphia.

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CLINICS.

CLINICAL LECTURES.

Clinical Remarks on Diffuse Sarcoma of the Uterus. By JOHN CLAY, Obstetric Surgeon to the Queen's Hospital, Birmingham.

GENTLEMEN: The patient from whom you saw me the other day remove some morbid growths from the interior of the uterus, is, as I stated at the time, suffering from diffuse sarcoma of the uterine mucous membrane. During the last three years we have had under treatment in the hospital six other cases of disease of the same nature, and therefore in to-day's lecture I have thought it advisable to comment upon them collectively, as they present important features in common, while they exhibit peculiarities which can with the greatest advantage be considered in this manner.

I may remind you that sarcoma of the uterus occurs in two forms: one more or less solid, which, as it increases in size, constitutes a distinct tumour, and, when examined under the microscope, is found to consist principally of fusiform cells; the other, the diffuse form just mentioned, in which small round cells predominate. The division between these two forms of uterine sarcoma is, however, not always sharply defined. Both forms of the disease, moreover, are marked by features common to other diseases of a benign character, and very frequently

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curable, while the cases of sarcoma which we are considering always have a fatal termination. The interest of this disease is much enhanced by the fact that the treatment usually recommended for its alleviation is precisely that which is adopted for the cure of the similar diseases of a benign nature.

The symptoms presented by the seven patients now under notice were tolerably uniform, with the exception of some urinary complications, which occurred in two of the cases. The following is a brief summary of the history of the patients and the symptoms which they presented. Six of the patients were married, and were wives of persons of the operative class. Their ages ranged from thirty-two to forty-one years. All of them had given birth to children, the smallest number being three, and the highest eight. Only one patient had aborted, and this occurred eight years previously to coming under observation, and she had since had two children at term. None had borne children for four years previously to treatment, and in the case of one patient it was sixteen since her last pregnancy. One patient, aged fifty-two, a housekeeper, was unmarried, with the hymen firm and intact. In her case menstruation had ceased nine years. Thirteen months before applying at the hospital a sanguineous discharge appeared after she had returned from a long walk, and this discharge continued in an excessive degree for three days, when it suddenly ceased, leaving her much exhausted. This was followed by a free, thin, and turbid discharge, which troubled her very much on account of its peculiar rather than offensive odour. She had three subsequent attacks of hemorrhage at four, five, and nine months' interval respectively, and in each instance it was followed by the same serous discharge. The patient was at these times treated medically, but she derived little benefit from the treatment. All the patients applied for medical aid in consequence of menorrhagia. In the cases of the six married women the commencement of the disease was uncertain. The menstrual periods were at first tolerably regular, but were marked by an increased sanguineous discharge, which increased at each period, and also continued longer, until at the time of admission into the hospital the discharge was almost continuous. It is worthy of remark that for several days previous to the regular period the discharge was more of a watery nature tinged with blood, being described as very pale; clots were noticed only at certain times, probably corresponding to a menstrual period, and then the discharge was more of a true hemorrhage, being of a bright-red colour. Pain, as a rule, was experienced only on these occasions, and was of an expulsive character, similar to that which is observed in some forms of dysmenorrhœa. Occasionally the coloured discharge would cease for a few days, and would then be followed by an almost odourless watery discharge, sometimes so abundant as to require the use of several napkins daily. The patients were all anæmic, with impaired appetite and œdema of the lower extremities. They were all remarkably free from nervous and hysterical phenomena.

The objective signs furnished by the patients were tolerably uniform. On palpation the uterus was found to be enlarged. Per vaginam, the os uteri was soft and thickened, its condition otherwise being normal, but invariably patulous, readily admitting the finger. The cavity of the uterus was enlarged, permitting the finger to move easily to explore the uterine cavity. One part of the uterus was felt to be thickened—cushioned as it were; and this part was rough to the touch, and largely studded with prominent growths varying in size from a pea to a hazel-nut. In other parts of the uterus smooth spaces were discernible. In one case the irregularity of surface appeared to be general. The space occupied by these growths was about half of the uterus, and was generally on the posterior surface. In the unmarried patient there was a space of about the size of a crown-piece at the fundus, which seemed to be denuded of mucous membrane; it was also dry and fissured. Just above the posterior part of the cervix, in one patient, there was a growth of the size of a cherry, which after removal was found to contain both fusiform and round cells. In two of the cases the os and cervix were slightly thickened, and were soft, as if infiltrated with serum. By the use of the sound the uterus was found to measure from four to five inches. The employment of the sound was generally followed by hemorrhage, occasionally lasting for hours. Bladder complications were absent in five of the cases, and in these there was no displacement of the uterus, and there was also complete mobility of this organ. Two of the patients—the unmarried one, and the married one who had not been pregnant for sixteen years—suffered from retroflexion of the uterus, with retention of urine; and had, in fact, all the symptoms of retroversion of the gravid uterus, these being undoubtedly caused by the enlarged, weighty uterus. The urine had to be drawn off two or three times daily for about a fortnight, and several kinds of mechanical appliances were employed to remedy the displacement, but without effect—seeming, indeed, only to aggravate the sufferings of the patients. It was not until the growths were removed that the more urgent bladder symptoms were relieved, and a Hodge's pessary could then be worn for a time with comfort; but in both cases, after removal of the growths, the disease returned, the uterine walls being covered with the same kind of growths as before, and this was again complicated by the return of the urinary troubles. Further operative measures were objected to by both patients, and they left the hospital. I learned subsequently that they died in a few weeks after great suffering, the bladder symptoms being especially distressing.

The treatment pursued in all the cases consisted in carefully removing the growths with a Sims's curette. The quantity removed varied from a dessertspoonful to two-thirds of a teacupful. The growths always exhibited the same grayish-white, vascular, brain like appearance, and varied from the size of a pea to one somewhat larger than a horse-bean. The operation was invariably followed by a copious hemorrhage, to arrest which perchloride of iron in solution was injected into the uterus, and this succeeded in arresting the bleeding. It was never necessary to dilate the os uteri with sponge tents before using the curette. There was but little reaction after the operation, and the patients left the hospital in less than a week, being then made out-patients, and placed under a course of treatment of which the ferruginous tonics were the principal element. Pepsine was used by insufflation twice a week.

As already mentioned, the disease returned in all the cases, the patients displaying symptoms similar to those which they manifested before the operation. The period of return ranged from two to fourteen months. In three of the cases the operation with the curette was repeated with temporary benefit. The result of the seven cases was, that five died out of the hospital from hemorrhage and exhaustion, as was gathered on inquiry at their homes; there being no post-mortem examination made in any of the cases. The two patients with urinary complications died comatose, probably the consequence of uræmic poisoning, as I found that towards the last there was great difficulty in evacuating the urine. Two patients are probably still living; but the last time they visited the hospital there were unmistakable signs that the disease was returning.

It is generally considered that the two forms of uterine sarcoma cannot always be separated clinically, or even anatomically, with the exactness which the physician might desire; yet we find in the cases to which I have directed your attention that the form of the disease was always clearly manifest, and that it always presented the same signs—namely, those indicative of the diffuse sarcoma. No distinct tumour of a fibrous nature existed, or even a tumour of that structure modified by softening or ulceration. The physical characters of a fibrous sarcoma, and even the symptoms, may be changed by the supervention of these processes, the growths assuming different forms; and so dissimilar are some of its phases that it seems to belong to a totally distinct class of disease. Practically, however, the range of diseases with which fibrous sarcoma might be confounded is diminished under these altered circumstances, and consequently the diagnosis is much simplified. It is of great importance to endeavour to form correct views of the diagnostic points of the diffuse form of sarcoma at an early period of the manifestation of the disease, as probably some means might then be devised of removing it altogether. There is no doubt that we require more information than we now have of the nature and means of treatment of this malady, but by the light afforded by the cases now under consideration there does appear to be a hope of something more effectual being done towards its cure than has hitherto been attempted. A great advance has been made recently towards the elucidation of the true nature of this disorder. The foremost place must be assigned to Virchow, as his researches have powerfully stimulated inquiry into the nature of these diseases, which have thus been rescued from the obscurity and uncertainty by which they were for a long time surrounded. Subsequently to his researches, several German pathologists have published valuable essays of a practical nature. Of these Ahfeld and Hegar have done much to illustrate the diffuse form of the disease. Other writers have contributed to the literature of the subject, but the writings of most of these—notably those of Professor Simpson—have more particular reference to fibroid sarcoma, with a view to differentiate it from cancerous growths. The valuable and remarkable essay of Olshausen "On Chronic Hyperplastic Endometritis," is worthy of especial mention in connection with this subject, as a careful study of it, and a comparison of its conclusions with the essays on sarcoma previously referred to, render it almost impossible to confound the latter diseases with any other morbid condition of the body of the uterus; and although the phenomena of the two classes—the benign and the malignant—run closely parallel, yet, when carefully examined, they will be found to repay the closest scrutiny. The controversies which have lately engaged the attention especially of German pathologists with respect to this disease have a special interest for inquirers, and the question is of such importance from a therapeutical point of view that it merits the sustained attention which uterine pathologists are giving to it. These circumstances impart revived interest to the treatment of the "uterine fungosities" practised by some French physicians nearly forty years ago, as it is to them we are mainly indebted for the principles of the method of treatment now adopted for removing morbid growths from the interior of the uterus by means of the curette. The facts collected by Rouyer and Goldschmidt in their valuable theses on Uterine Fungosities are of great importance, and the large number of cases which they describe illustrate the different methods of treatment, and are creditable to their industry, forming, indeed, a valuable *résumé* of the previous experience of Récamier, Nélaton, and others. It must, however, be acknowledged that pathologically they are not of much value, as there is no doubt that, under the title of uterine fungosities these writers included several conditions which cannot properly be grouped together, such as villous growths of the mucous membrane, chronic hyperplastic endometritis, and some other forms of disease.

The subjective and objective phenomena furnished by the patients whose epitomized history I have given you supply a tolerably fair account of the symptoms of this interesting disease, and are sufficiently explicit to require only brief comments upon them. The ages of the patients and the regularity of the menstrual periods show that in the majority of the cases the disease commenced during the period of sexual vigour. Only one case occurred nine years after the cessation of the menses. It is not evident that difficult parturition or abortion had any connection with the causation of the disease, as, on careful inquiry into the character of the labours, they may be generally pronounced as having been very good. Most of the patients had lived the greater part of their lives in the country, and were fairly tall, well-proportioned, and well-developed women. In each case it was on account of suffering from menorrhagia that the patients were led to apply at the hospital for relief. The date of the appearance of this symptom in all the married cases was uncertain. The discharge was first noticed to be increased in quantity at the regular periods; after two or three months the duration of the periods was also found to be increased: and after a few months the discharge became almost continuous, so that there seemed to be scarcely any intermission, and in the intervals which did occur there was an abundant watery discharge, this, especially later in the disease, being more or less freely tinged with blood. It would appear that in diffuse sarcoma there is always menorrhagia; while its absence in the fibroid form is more easily explained by the nature of the tumour, and the fact that sloughing and ulceration of it have not occurred. The important point to be borne in mind is, that you must not consider an increased flow of blood at the menstrual periods, constituting menorrhagia, to be the result alone of general causes (a conclusion which has become more prevalent of late), but that when it may be considered fairly chronic, and when it is alternated with watery discharges, you must suspect that it arises from local causes, and therefore demands careful and special investigation. When the disease has existed some time, the patient is generally very pale; there is also the peculiar sallow colour so marked in advanced malignant disease, this condition being chiefly caused by the excessive drain on the system produced by sanguineous and watery discharges. Dr. Thomas states that the great vascularity of the growths in diffuse scarcoma is the cause of these discharges, and in describing the attendant phenomena he says that it rapidly proceeds to fetid ulceration. This, however, is not our experience, as the discharge was not fetid in any of the cases now under consideration, and the absence of sloughing and ulceration was often commented upon. The ordinary uterine exploration undoubtedly easily excited hemorrhage, and probably this was occasionally produced by the contractions of the uterus; but it is a noteworthy fact that the amount of hemorrhage was out of all proportion to the apparent ulceration. It probably may be explained by the general hyperæmia of the mucous membrane of the uterus. Sometimes a single mucous polypus gives rise to, or may be accompanied by, a profuse menorrhagia. In such a case the hemorrhage evidently does not arise from any breach in the structure of the growth; and when the growth is removed the hemorrhage ceases, probably because the source of irritation—the cause of the hyperæmia—is removed. It is obvious that several authors who have contributed to the pathology of this subject have confused the two forms of the disease in their descriptions. The hemorrhage occurs more constantly in the diffuse sarcoma; while it is more occasionally met with in the fibroid form, in which it depends more upon the sloughing and ulceration of the growth than upon any local hyperæmia, and naturally varies in quantity as circumstances increase or diminish the circulation of blood in the uterus. The almost entire absence of pain seems to be an important feature in diffuse sarcoma, and is a valuable aid in the diagnosis. The pain is chiefly due to the contractions of the uterus, evoked to expel coagula formed and retained in the uterus during an increase of the sanguineous discharge. I may here mention the allegation that secondary growths in other parts of the body are likely to occur in sarcoma of the uterus; in our cases, however, there was no evidence of them. The results produced by absorption of septic material are of more probable occurrence.

You will find that the diagnosis of disease of the interior of the body of the uterus is frequently attended with considerable difficulty, especially at an early period of its development. This particularly applies to the disease we are now considering. In the diagnosis, it is advisable first to decide between the presence of the two forms of sarcoma. The fibroid sarcoma has more or less fibrous tissue entering into its composition, and consequently is harder, thus forming a more distinct tumour according to the degree in which such tissue preponderates. Therefore, if you have this kind of growth under examination, whatever may be its varying degree of development, you cannot well confound it with the diffuse form. The latter form is clearly a distinct disease; and, as far as my experience guides me to a conclusion, I may say that I have never seen this form assume a homogeneous mass, so as to constitute a distinct and increasing tumour. From the nature of its composition we must consider it a round-celled sarcoma; otherwise, from its anatomical and clinical characters, it might be regarded as altogether another disease, so different is it from the more solid form. Excluding the solid growths, by this mode of investigation the papillomata and the various forms of fibrous and sarcomatous polypi are removed from consideration; and our attention is confined to the diagnosis between cancer of the body of the uterus and chronic hyperplastic endometritis, as the phenomena to which these diseases give rise are common to diffuse sarcoma of the uterus. It is scarcely necessary to mention mucous polypus of the uterus, as the pedicellated character which this generally assumes enables it to be easily recognized. Menorrhagia and more or less watery discharge are always prominent symptoms, and almost always indicate the presence of some structural lesion, and are therefore common to all the diseases just mentioned. The almost entire absence of pain serves in some degree to distinguish this disease from cancer of the body of the uterus, as the pain of the latter is excessive, and is of a neuralgic character rather than of the expulsive nature of the pain which is sometimes met with in advanced stages of diffuse sarcoma. These signs, it is evident, do not afford much diagnostic information, and we are forced to arrive at a conclusion by the only certain means—*i. e.*, a digital examination of the interior of the uterus, and a removal of a portion of the growth for ocular and microscopical examination. I have mentioned that the os uteri in our cases was sufficiently dilated to admit the passage of the finger; but it is not always so, especially in the other diseases I have named. If, however, it is found to be closed, the os uteri must be dilated by sea-tangle or sponge tents to a sufficient extent to admit the finger. This being effected, and the finger being introduced into the uterus, counter-pressure must at the same time be made on the abdomen in order to bring the uterus within reach of the finger. If it is a case of diffuse sarcoma, we shall find upon some one part of the uterus (rarely all over it) several distinct growths, which arise from what is felt to be a thickened basis, the size of the growths varying perhaps from that of a pea to that of a hazel-nut. In chronic hyperplastic endometritis, this thickened basis, if present, is not so marked, and the growths are not so prominent, indicating, on being touched, a broader attachment, a mere roughening, as the growths do not attain a larger size than that of a grain of wheat, or at least an elevation of that size. In cancer of the fundus of the uterus, the growths at first show themselves in roundish protuberances on the walls of the uterus, which, in consequence of the encroachment on the cavity of the organ, become enlarged at an early period of the disease; and these growths may even be felt to protrude on the exterior of the uterus. If these growths or nodules soften and ulcerate, they might be confounded with sarcoma; but in cancer of the fundus the tendency is to produce a depression or excavation instead of a thickening of the tissue—in short, to form a large ulcer, with a somewhat hard and irregular margin; while in sarcoma the disposition of the growths is to become aggregated and to form masses, which push their way into the cavity of the uterus, and may, in some cases, be eventually expelled in consequence of a sloughing process supervening. Even here, however, we have not the excavated ulcerated surface just mentioned as peculiar to some forms of advanced intra-uterine cancer.

We are, therefore, forced to the conclusion that the existence of diffuse sarcoma cannot be determined otherwise than by an ocular or microscopical examination of a portion of the growths, removed for the purpose of examination. I say ocular, because those of you who a few days ago saw the case of chronic hyperplastic endometritis in which the curette was used, and who also saw the structures removed in the case of diffuse sarcoma, cannot be satisfied that, upon examination of the growths removed, their nature may with some degree of exactness be fairly ascertained from their appearance alone. If we compare these growths with those removed in the case of endometritis, the latter are seen to be intensely hyperæmic, and under the microscope they show an increase of all the elements of the uterine mucous membrane—dilated follicles with abundant cell infiltration of the connective tissue; while in diffuse sarcoma the growths are of a grayish-white colour, very vascular, and presenting a soft, brain-like consistence, and are capable of being easily crushed between the fingers. Under the microscope they are found to consist of innumerable small round cells, surrounded by intercellular substance. It is no doubt somewhat difficult to diagnose cases of diffuse sarcoma by a digital examination, but having due regard to the symptoms as a whole, and to the appearance of the growths removed, we may in many instances fix the nature of the disease by this means alone. It is but right, however, to say that ulceration and sloughing of the mass may so alter its appearance that the use of the microscope may be required for an absolute decision. Then, noting the absence of cancer cells and of cells peculiar to other growths, the true nature of the case is at once demonstrated.

The treatment consists in removing the growths by means of the curette. I employed Sims's, which in every case completely fulfilled my expectations. Assuming that the os is dilated, and having by previous examination ascertained precisely the seat of the growths, the curette is to be applied cautiously to this part, going over the diseased surface. The action of scraping removes the growths from the uterus, and brings them into the vagina, whence they may easily be dislodged by using a free stream of water by means of Higginson's syringe. After each operation a smart hemorrhage followed, and with the view of arresting this, and of producing a favourable change in the diseased parts, a solution of perchloride of iron was injected into the uterus. This generally stopped the hemorrhage, and promoted a more normal condition of the interior parts. The results of this method of treatment were so satisfactory that the patients were generally able to be placed in a few days on the list of out-patients. In these cases insufflation with pepsine was used afterwards. When from its use the pain became very severe, which occurred after three or four applications, powdered nitrate of silver with charcoal in powder was used with the insufflator, and proved efficacious for a time, but, as previously stated, the disease generally returned. It is of course necessary to support the strength of the patient, and to remove the anæmic condition, as far as possible, by the use of a generous diet, aided by the administration of tonics, of which iron in some form should be the chief.—*Lancet*, Jan. 6 and 13, 1877.

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Abstract of a Lecture on the question, When is the Catheter to be used for Habitual Retention from Hypertrophied Prostate? By Sir Henry Thompson, Surgeon Extraordinary to H. M. the King of the Belgians, Emeritus Prof. of Clinical Surgery in University College Hospital.

There is a question which arises in the treatment of these cases which sometimes demands careful consideration. It is, "What are the circumstances which should determine us to commence habitual catheterism for a patient whose hypertrophied prostate prevents him from emptying the bladder by his own efforts?" I reply that there are at least two principal facts relating to the local symptoms which must be noted in arriving at a judgment for any particular case. Firstly, we must know the amount of "residual urine" habitually present—that is, the quantity left behind in the bladder after the patient has passed all he can by his own efforts; and, secondly, we must observe the degree of frequency, by day and by night, with which he passes water, but especially during the latter period.

In reference to the first particular, the amount of "residual urine," you will of course not always judge from one trial of the catheter. Where there is nothing to disturb the function of micturition—and it is very easily disturbed, as by the presence of a stranger, or by the requirement to perform the act for purpose of experiment when a natural want is not present —the amount of urine left in the bladder is pretty uniform with most patients; the conditions just referred to often temporarily impairing the expulsive power, and rendering therefore the residual portion on the occasion of examination rather larger than usual. This understood, let us suppose a case in which eight ounces always remains behind. That quantity suffices, in my opinion, to make it desirable that the patient should at once commence the daily use of the catheter. But you may find a much smaller quantity; and you are entitled to ask me—indeed, I expect you to do so— "What is the point in regard to quantity at which the line is to be drawn? When can I say, With this quantity a catheter is quite unnecessary; or, With such a quantity there is no doubt it must be used?" No answer can be given to such a question. The data from which to form a correct judgment are not contained within the terms of the proposition. Other facts are to be ascertained. I have heard it laid down, indeed, as an axiom, that so long as the urine is clear, no matter what the quantity retained, no instrument ought to be employed. A certain amount of *à priori* reasoning may be urged in behalf of such a rule, but it will not bear the test of large experience. The problem presented for solution in this, as in most other cases where surgical interference is imminent, is far too complex to be solved by one unvarying rule. Like the statement respecting quantity referred to above, the single fact that the urine is clear does not suffice to govern your decision. A large quantity of residual urine, much more than a pint, may exist, clear and acid in certain cases, but which, as we shall hereafter learn, ought certainly to be drawn off by catheter.

But let us see what this rule of never withdrawing the urine while it is clear means or involves. It means neither more nor less than waiting for the occurrence of chronic cystitis before we use an instrument! No other inference is possible. And why should we wait for chronic cystitis?—a condition which of all others it is highly desirable to avoid in an old and already incompetent bladder, leading as such an affection naturally does to thickening of tissues and loss of extensibility on the part of the organ. Is it not, on the contrary, the very condition we desire to avoid, and do mostly avoid, by commencing the use of the catheter at a sufficiently early period? Of course I know full well that in past days, when catheterism necessarily meant the use of the large metallic instrument, often painfully passed, to say the least, chronic cystitis was an ordinary and frequent result of catheterism. But it rarely is so now, with the soft and flexible instrument of moderate size, if only it is used at an early period in the case, and before considerable accumulation has taken place; the removal of a large quantity being mostly, I do not say invariably, followed by local and general disturbance. For it is not very common to find a patient whose residual urine has, from neglect of catheterism at an early period, reached the quantity of twenty ounces or more, who does not suffer somewhat severely from both chronic cystitis with purulent urine, and febrile attacks with resulting debility, whenever the daily use of the catheter has to be commenced. Furthermore, at this advanced stage of chronic retention, a slight accident of some kind readily occasions complete retention, or nearly so; and then it is no longer a question of using or not using the instrument, since the condition is now one which imperatively demands a catheter. In these last-named circumstances, chronic cystitis is almost sure to follow—an occurrence which most probably would not have happened had there been an earlier resort to the instrument. And so it happens, in the management of these cases of continued and chronic retention due to slowly advancing hypertrophy of the prostate, that the longer the use of the catheter is postponed after the early stage of the malady is passed, the worse will be the symptoms. And it happens, also, unhappily not seldom, that these serious symptoms following the use of the catheter bring undeserved discredit on the surgeon who first employs it—a discredit really attaching solely, and very gravely too, to the adviser who unwisely prevented an early resort to its aid. So that I beg you to understand that with a quantity of habitually retained urine amounting to eight or ten ounces, whether it be thick or clear, there is no question in a vast majority of cases that the time for the catheter, say, at least once, probably twice a day, has arrived.

But what other circumstance has also to be taken into account? A very important one, viz., the frequency with which the patient passes urine, and which differs greatly in different cases. It is much more to the purpose for your decision to note whether the patient is disturbed six times in the night or only twice, than whether his urine is clear or cloudy, or even whether the residual urine amounts to four ounces or to twelve. If you find him affected by loss of rest—one of those things which sap the foundations of life in elderly men—pass the catheter the last thing at night for him, and mark the result. If he obtains four or five hours of continuous sleep after the bladder has been emptied—a common occurrence—you have reason enough for persevering, and he will learn to use the instrument himself every night, and will be exceedingly grateful to you for the relief he has obtained. So also the avoidance of pain and spasm by this treatment—a result which is often to be noted—makes it highly desirable, whether the quantity drawn off be small or large, transparent or clouded by mucus. Taking into consideration these different phenomena, which vary so largely in different constitutions, you will have no difficulty in arriving at a correct judgment for each individual case, provided you give to each sign or symptom its due importance, and do not rest your decision on any one, unless that one—in regard of quantity, for example—is sufficiently marked to leave no ground for doubt as to your course.—*Lancet*, Jan. 6, 1877.

HOSPITAL NOTES AND GLEANINGS.

Case of Rupture of the Aortic Valve.—The following case, treated at the North Staffordshire Infirmary by Dr. ORTON, is interesting alike from the unmistakable character of the evidence of the cause and nature of the injury, and the peculiar symptoms which supervened.

James C——, aged forty, married, was admitted on October 19, 1876. He had always enjoyed good health, never had had rheumatic fever, or any other severe illness. At Christmas, 1875, while lifting a heavy weight, he felt something suddenly snap in his chest. He immediately fainted, and was conveyed in an unconscious state to the Liverpool Infirmary, remaining insensible till next day. Ever after the accident he could hear a sound in his chest, which he described as like a "pigeon cooing." About a week after the injury he had a severe attack of cough and hæmoptysis. The cough did not trouble him for more than about three months, but the hæmoptysis continued. He was not able to get out of bed from the first, and had to be propped up with pillows to relieve the dyspnœa. He gradually lost flesh, and became very weak.

On admission he complained of pain in left mammary region and epigastrium, and of great palpitation. There was slight cough, with scanty expectoration, the sputa being tinged with bright blood. He suffered from orthopnœa. There was no œdema of ankles. Urine sp. gr. 1005, no albumen. The heart's impulse was very strong; the left cavities were hypertrophied. A loud, harsh bruit could be heard with the second sound, loudest over the aortic valves, but transmitted to the apex, and also round towards the axilla, and up the carotids. The "water-hammer" pulse was marked; pulsation was visible in the carotids, radial, brachial, and other superficial arteries. Giddiness and faintness supervened on the slightest exertion.

The treatment adopted did not differ from that of an ordinary case of aortic valvular insufficiency.

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Case of Pannus of the Cornea treated by a free Incision of that Membrane.—Ada W——, aged thirteen, was admitted into the Birmingham Eye Hospital, under the care of Mr. J. Vose Solomon, on Nov. 13th, 1876, with pannus of both corneæ. She complained of severe pain which prevented sleep.

The central third of the cornea of the right eye presented a yellowish white infiltration, which projected forwards, forming a cone. The rest of the membrane and the sclera were uniformly scarlet, the colour being derived from numerous vessels; no ecchymosis. The whole of the cornea and sclera of the left eye presented a uniform scarlet surface; no extravasation of blood. In neither eye was the corneo-scleral boundary discernible.

With a view to the alleviation of pain, and the prevention, if possible, of sloughing, and consequent staphyloma of the cornea, a free vertical incision with a Gräfe's knife was immediately made through the whole width of the right cornea; a compress and bandage were applied to both eyes, and kept wet with belladonna lotion. The body of the patient was ordered to be anointed night and morning with refined neat's-foot oil, the patient to remain in bed for at least a week; ordinary diet.

Nov. 16. No pain since the operation; sleep restored. The right eye is less vascular; the left has undergone a remarkable improvement, patches of opaque cornea being now visible.

20*th* (seventh day after operation). The whole of the left cornea is visible; it is opaque; no pannus; thin vessels traverse the membrane at intervals. Vascularity of the right eye much diminished; area of central exudation lessened; a tenacious purulent-looking material (pus and débris of corneal tubes?) projects from the wound, which is about a line and a quarter in length, the remainder having cicatrized.

24*th*. Omit lotion; dry dressing to be applied, also atropine drops.

27*th*. The central opacity of the right eye is white.

Dec. 4. An asthenic central ulcer has perforated the cornea.

5*th*. The patient left the hospital for home, which is in the town.

7*th*. Ulcer of the cornea healed, and normal convexity restored; vascularity diminished.

15*th*. Both corneæ are clearing, which permits of a view of a part of each pupil.

Remarks. In the first volume of *Braithwaite's Retrospect* for the present year I have given some account, with cases, of the "Value of Incision of the Cornea" in serious diseases of inflammatory origin, to which the reader of the present illustration of the practice is referred. Of the gradual restoration of Ada W——'s sight I have no misgivings. It will be noticed that the old practice of inunction with refined neat's-foot oil in cases of imperfect general nutrition has been revived by me at the hospital. Contrary to what might be anticipated, it is cleanly, inodorous, and quickly absorbed. Of its usefulness we have had numerous proofs.—*Lancet*, Dec. 30, 1876.

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Femoral Hernia, with a Diverticulum through the Superficial Fascia; Strangulation; Operation; Recovery. (*Cooper's Hernia.*)—Cases in which the strangulation of intestine or omentum is due to the influence of some band or process of superficial fascia beyond, and external to, any one of the usual tissues forming the wall of the canal, are comparatively rare, and the diagnosis of the actual seat of stricture is thus rendered more difficult.

Mrs. W——, aged fifty-five, was admitted January 4, 1877, into Mr. Bellamy's ward at Charing Cross Hospital, with all the symptoms of strangulated hernia, the reduction of which by the taxis some hours before she came to the hospital had failed. On examination, two large tumours were found in the region of the groin—one external, about as large as an orange, very tense and inflamed, with a slightly ulcerated surface; and a second tumour internal to it, situated above the symphysis pubis, and separated from the former by a deep sulcus (evidently the site of the edge of the vulval aponeurosis), which was thickened and rendered more tough and unyielding by the presence of a cicatrix which was adherent to the subjacent tissues. This cicatrix was the remains of a previous operation for strangulated hernia. Alternate pressure upon the tumours clearly showed them to be connected.

Mr. Bellamy diagnosed a femoral hernia deflected from its usual course, directly over Poupart's ligament, and which had taken a direction upwards and inwards, probably constricted by a fascial band, and evidently strangulated. However, after the amount of taxis which had been applied, he deemed it more judicious to operate at once. Chloroform being administered, he made an incision about three inches long with a bistoury directly through the tough tissues forming the sulcus, down upon the sac, which had the effect of instantly liberating the constriction and of converting the two masses into a single tumour. The inner portion of this consisted of a large knuckle of gut on the verge of strangulation, whilst the external—the one emerging from the saphenous opening—consisted of a coil of gut and a large quantity of omentum, which was highly injected. After gently attempting reduction without success, he divided the sac, from the cavity of which a large quantity of serum escaped; the bowel was then reduced partially, but it was found necessary to nick the edges both of Hey's and Gimbernat's ligaments before both gut and omentum could be entirely replaced within the abdominal cavity. There was no hemorrhage whatever, the external wound was united with a wire stitch, a pad and spica bandage applied, and a full dose of opium administered. The next day she was very comfortable, although there had been a slight attempt at retching, and her evening temperature rose to 101°. On the 7th the temperature was normal, and she passed a natural motion.

She improved from day to day, and is now (Jan. 20th) convalescent.—*Lancet*, February 3, 1877.

MEDICAL NEWS.

ORIGINAL ARTICLES.

Singular Metastatic Action. By Wm. Boys, M.D., of Waverly, Iowa.

I was called the 14th of October, 1872, to see P. J., æt. 19; occupation, farmer. I found a case of parotiditis; both parotid glands were swollen. I saw no more of the patient until nearly two weeks afterwards, when I was called again to see him. I found his left testicle swollen; no enlargement of the parotid glands, and very little constitutional disturbance. Rest and warm-water applications made; oiled silk was prescribed, and within ten days the swelling had almost disappeared.

The same patient, the 25th of June, 1873, while raking hay with a horse-rake was thrown on the treadle, striking his left testicle. It at once became painful, and commenced swelling; no marked constitutional disturbance. A week afterwards it was swollen three times its natural size, and not so painful as at first. I strapped it with adhesive plaster after the method of Fricke, of Hamburg. Within twenty-four hours after the plasters were applied the swelling had apparently left the testicle, and the left parotid gland and surrounding region, which had been up to this time in an apparently normal condition, became enlarged, swollen, and painful—as much so as when he had the mumps. The face remained swollen for a week or ten days.

DOMESTIC INTELLIGENCE.

Prevention of Scarlet Fever.—The Board of Health of Boston has caused a copy of the following circular to be sent to every householder in the city. By a previous circular, physicians are directed to report at once every case of sickness from this cause:—

Scarlet Fever.—The Board of Health issues the following circular of recommendation with the hope that those not familiar with the care of scarlet fever, may be benefited thereby: Scarlet fever is like smallpox in its power to spread readily from person to person. It is highly contagious. The disease shows its first signs in about one week after exposure, as a general rule, and persons who escape the illness during a fortnight after exposure, may feel themselves safe from attack. Scarlet fever, scarlatina, canker rash, and rash fever are names of one and the same dangerous disease. When a case of scarlet fever occurs in any family, the sick person should be placed in a room apart from the other inmates of the house, and should be nursed as far as possible by one person only. The sick-chamber should be well warmed, exposed to sunlight, and well aired. Its furniture should be such as will permit cleasing without injury, and all extra articles, such as window drapery and woollen carpets, should be removed from the room during the sickness. The family should not mingle with other people. Visitors to an infected house should be warned of the presence of a dangerons disease therein, and children, especially, should not be admitted. On recovery the sick person should not mingle with the well until the roughness of the skin, due to the disease, shall have disappeared. A month is considered an average period during which isolation is needed. The clothing, before being worn or used by the patient or the nurse, should be cleansed by boiling for at least one hour, or, if that cannot be done, by free and prolonged exposure to out-door air and sunlight. The walls of the room should be dry-rubbed, and the cloths used for the purpose should be burned without previous shaking. The ceiling should be scraped and whitened; the floor should be washed with soap and water, and carbolic acid may be added to the water—one pint to three or four gallons. The infected clothing should be cleansed by itself, and not sent to the laundry. In case of death from scarlet fever, the funeral services should be strictly private, and the corpse should not be exposed to view. Because children are especially liable to take and spread scarlet fever, and because schools afford a free opportunity for this, the Board of Health has excluded from school every child from any family in which a case of the disease has occurred, and has decreed that the absence shall continue four weeks from the beginning of the attack, except in cases subject to the discretion of the Board, and that the scholar, to be readmitted to his school-room, must have the certificate of a physician that the required time has passed. The proper blanks can be obtained at this office on application.

Infectious Diseases. — The New York Board of Health has issued an order requiring that in the publication of funeral notices the infectious diseases of which patients have died shall be stated.

Medical Society of Virginia.—At the annual meeting of this Society, held at Charlottesville, in October, 1876, the following officers were elected to serve for the ensuing year: President, James L. Cabell, M.D., of University of Virginia. Vice-Presidents, Drs. Christian, of Lynchburg; Figgat, of Christiansburg; Brock, of Richmond; McIlhany, of Warrenton; Stockdell, of Petersburg; and Semple, of Hampton. Secretary, Dr. Landon B. Edwards. The next meeting will be held at Petersburg, on the 23d of October.

Bureau of Medicine and Surgery, U. S. Navy.—Medical Director William Grier has been appointed Surgeon-General of the Navy, *vice* Dr. Joseph Beale, retired.

FOREIGN INTELLIGENCE.

Osteotomy in "Genu Valgum."—At the Congress of Naturalists recently held in Hamburg, an interesting paper on this subject was read in the Surgical Section, by Dr. MAX SCHEDE. Antiseptists will be pleased to know that the successful results, to which we will shortly refer, were considered in great measure as due to the antiseptic precautions and dressings which were adopted in the cases. Dr. Max Schede presented to the Congress a young man on whom he had performed cuneiform osteotomy of both tibiæ and both fibulæ. The man had been the subject of exaggerated *genu valgum*, which had resisted all previous treatment. The legs and thighs were at an angle of about eighty degrees. Antiseptic precautions were adopted at the operation (which was done in February), and Esmarch's bandage was applied. A wedge-shaped piece of bone, three-quarters of an inch wide, was excised from each tibia, and the fibula was cut across; the legs were then straightened. At the end of May, consolidation was complete, and the operation thoroughly successful. At the same time he reported other cases where the operation had been done with similar success either for rickets or knock-knees. He mentioned one case in which the tibia had been divided but not the fibula, but the cure was not so complete as in those cases where both bones had been cut. Mr. Howard Marsh recently read before the Royal Medical and Chirurgical Society a paper on Osteotomy of the Tibia for Deformities caused by Rickets; he referred to some successful cases in which he had performed this operation at the Children's Hospital in Great Ormond Street. When we consider how helpless the subjects of extensive rickets and severe knock-knees may become, it is a matter for congratulation to think that surgeons are now able to tackle these diseases with such good chances of success, and with so little risk to the patients.—*Med. Times and Gaz.*, Jan. 6, 1877.

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Wound of the Hand.—Herr **Bardeleben** describes (London *Med. Record*, Dec. 15, 1876) the case of a woman who had been wounded by a sharp hatchet during a quarrel with her husband. On her admission into the Charité Hospital, she had a gaping wound on the forehead, reaching to the bone; and there were numerous wounds on both hands, especially the right. The metacarpal bone of the thumb was cut through, and many of the carpal and carpo-metacarpal articulations were laid open, and several tendons were divided. When Herr Bardeleben saw the patient, every preparation had been made for amputation; but he determined to trust to antiseptic dressings, and to endeavour to preserve the hand. The result was that recovery took place with a very useful hand; the fingers retaining a considerable amount of mobility in spite of the injury of the tendons. No sutures were applied to these.

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Fissure of the Anus.—In place of sudden dilatation or complete incision, Prof. **Gosselin** (*Union Med.*, Jan. 16, 1877) combines the two methods in part. He introduces the index finger every day into the anus, until he is able to see the upper part of the fissure. He next incises this, but only dividing about a fourth of the sphincter ani. He then introduces daily a tent smeared with cerate of extract of rhatany. This method has proved very successful in his hands.—*Med. Times and Gaz.*, Jan. 27, 1877.

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Preliminary Injections of Morphia in Paracentesis Thoracis.—M. **Vibert** (*Journ. de Thérap.*, Dec. 25), as the result of several cases in which he has tried it, states that the advantages of the preliminary injection of morphia in the operation of thoracentesis, and indeed in any operation which may give rise to syncope, may be thus summed up: 1. It very much mitigates the suffering inherent to the operation. 2. It protects those operated upon from syncope, and its redoubtable consequences. 3. It obtains for them a sense of comfort, which is produced as soon as the operation is finished, which persists for many hours, and which may be prolonged by additional injections.—*Med. Times and Gaz.*, Jan. 27, 1877.

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Subcutaneous Injections of Cold Water in Acute Rheumatism.—Dr. **Dieulafoy** (*Gaz. des Hôp.*, No. 99) has for several years past been in the habit, in acute articular rheumatism, of injecting some ten drops of cold water around different parts of the affected joint as a means of relieving the pain. The results are most remarkable. The pains abate, and the patient is enabled to move the joint; and in some cases the rheumatism is even cured by this simple means. The same means may be employed also in muscular rheumatism, ischias, etc.—*Med. Times and Gaz.*, Jan. 27, 1877.

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Ammoniacal Tincture of Musk.—Prof. **Lebert** recommends the following formula in cases in which inflammatory affections take on a typhoid or adynamic character: Musk one, carbonate of ammonia one, distilled water ten, and rectified alcohol thirty parts; essence of mint two drops. Twenty-five or thirty drops in water or wine.—*Med. Times and Gaz.*, Jan. 20, 1877.

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Ossification of Artery after Injury.—Mr. Howse exhibited to the Pathological Society of London (*Med. Times and Gazette*, Dec. 23, 1876), a specimen of a rare condition of the wall of an artery, namely, the true ossification. A man of thirty-nine was admitted into Guy's Hospital after having been pitched from his cart, dragged some distance, and finally run over by a cab. The wheel had gone across the shoulder; and a purple tumour, as large as an orange, was found in the axilla, immediately after admission. It was non-pulsating; but no pulse could be felt below the axillary artery, and the hand was cold. Two of the fingers were crushed, but none of the bones otherwise were broken. The treatment was expectant. The patient made excellent progress for some days; warmth returned slowly to the hand, but for a time no sensibility. On the tenth day there was sensibility in the region corresponding to the ulnar nerve. For fourteen days the temperature continued nearly normal; thereafter it rose sharply, and the two crushed fingers were amputated. But on the sixteenth day pyrexia returned, with squint and anomalous brain-symptoms and basic pneumonia. The state was supposed to be one of septicæmia; and, the brain symptoms increasing, the patient died on the eighteenth day. Post-mortem, no septicæmic appearances were found in the lungs—only slight consolidation at one base. The axillary artery, if not torn across, had been greatly contracted in its third portion, and in the external (?) coat true bone was found. The exhibitor said that well-marked cases of ossification of the coats of arteries were very rare, most being mere calcification; although ossification had been described in the walls of aneurism. Callus, too, had been found on the walls of vessels, probably by transplantation of periosteum; but no such explanation could be offered here, as the bones were found entire and covered by continuous periosteum.

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New Anæsthetic Agent.—Rabuteau, in a memoir read before the Académie des Sciences, states that he has investigated the physiological properties and mode of elimination of hydrobromic ether. He has satisfied himself that this anæsthetic agent, which possesses properties intermediate to those of chloroform, bromoform, and ether, might be advantageously employed to produce surgical anæsthesia. The hydrobromic ether is neither a caustic nor an irritant. It can be ingested without difficulty; and applied without danger, not only to the skin, but to the external auditory meatus and to the mucous membrane. It is eliminated completely, or almost completely, by the respiratory passages, in whatever way it may have been introduced into the system.—*Lancet*, Jan. 27, 1877.

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The Force of Example.—A curious instance of the power of the imitative faculty was reported to the Société de Biologie at Paris on November 22, 1876, by Dr. Magnan. At a girls' school near Paris, numbering 115 scholars, a girl, ten years old, was attacked with convulsions in one forearm on July 15, 1876. These convulsions gradually extended in the next few months to all the extremities, and were followed by strong tonic contractions of the muscles, but the child ultimately recovered. Up to November 19, *nineteen* other girls of different ages became subject to exactly similar attacks. They all finally recovered, and the average duration of the disease was shorter than in the original case.—*Med. Times and Gaz.*, Jan. 27, 1877.

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Professional Opinion on Proprietary Dispensaries.—A meeting of the medical profession in London was held on the 4th of December, at the rooms of the Medical Society of London, to discuss the question of proprietary dispensaries. Dr. R. Quain presided. In opening the proceedings, Dr. Quain referred to the difference between proprietary dispensaries (in which it was the object of the owner to make as large a profit as possible out of the patients), and provident dispensaries (which were under the direction of governors, and which might be truly classed among charitable institutions). A proprietary dispensary under the mask of a provident institution was but a prostitution of the name of charity. The following resolution, proposed by Mr. Adams, seconded by Mr. Mac Cormac, was carried unanimously, viz.: "That the principle of establishing proprietary dispensaries under the guise of provident institutions is in the highest degree objectionable, and ought to be discouraged as fraught with danger to the public, and as tending to degrade the status of the profession."—*Med. Times and Gaz.*, Dec. 9, 1876.

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A New Galvanic Battery.—M. Leclanché has just constructed a new galvanic battery, which the *Annales Industrielles* thinks likely to render great service both in manufactures and in scientific research. The original oxide of manganese battery by the same inventor consists of a porous jar filled with pyrolusite, in which is contained the carbon forming the positive pole. This jar is immersed in a solution of sal-ammoniac in contact with zinc. M. Leclanché has, however, introduced several improvements into this battery. He has superseded the porous jar by conglomerating the oxide of manganese, mixed in nearly equal parts with carbon, but with the addition of a small quantity—5 per cent.—of resin for the purpose of giving consistency to the mass. These three substances, properly pulverized and intimately mixed, are conglomerated under a considerable pressure, and at a temperature of about 100° Cent. (212° Fahr.) into a solid cylinder, which serves at the same time as a porous diaphragm and a positive electrode. But here a difficulty occurred. Under the influence of the current, an almost insoluble oxychlorate of zinc was formed, which was deposited in a crystalline form in the pores of the electrode, and considerably diminished its conductibility, so that the internal resistance of the battery increased very rapidly, occasioning considerable inconvenience, especially when used for telegraphic purposes. M. Leclanché has now got rid of the difficulty by inserting in the centre of the carbon and manganese electrode, while being moulded, a small cylinder of bisulphate of soda. This acid salt prevents the formation of the oxychlorate of zinc; and the battery preserves its regularity for more than a year without the necessity for renewing the water of the saline solution. It offers a much slighter resistance than other batteries, and gives out a considerable quantity of electricity. A single element of small size, presented by M. du Moncel to the Académie, immediately caused a platinum wire connecting its two poles to become red-hot.—*London Med. Record*, Nov. 15, 1876.

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International Medical Congress, Philadelphia, 1876.—At the meeting of the Obstetrical Society of London, held on Jan. 3d, the report of the delegate to the International Medical Congress was read by Dr. Robert Barnes, the delegate representing the Society at the Congress. Dr. Barnes, who was elected President of the Obstetric Section, expressed his high estimation of the papers read before the Section, and his great admiration for the zeal and earnestness with which work was done. He gave a brief sketch of the manner in which the business of the Section was conducted, and concluded by expressing his gratification at the hospitality and kindness shown him in America.—*Lancet*, Jan. 20, 1877.

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Pathological Society of London.—We are glad to learn that the Council of this Society have decided to apply to the Government Scientific Grant Committee for a grant of money, to enable a committee of the Society to undertake an organized investigation of the intimate pathology of the morbid processes commonly designated pyæmia, septicæmia, and purulent infection, having special reference to their various causes. Should the scheme be carried out, we may anticipate results of the highest practical importance.

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SUMMARY OF CONTENTS.

CHAPTER I. INTRODUCTION. II. Assimilation. III. Excretion. IV. Body Heat and Fever. V. Inflammation: its Varieties. VI. Anæmia; Plethora; Congestion. VII. Growth and Decay. VIII. Abnormal Growths. IX. Blood Poisons; Specific Poisons. X. Acute and Chronic Disease. XI. Diabetes; Rheumatism, Gout. XII. Diatheses and Cachexiæ. XIII. Action and Inaction. XIV. The Circulatory System. XV. The Respiratory System. XVI. The Digestive System. XVII. The Urinary System. XVIII. The Reproductive System. XIX. The Cutaneous System. XX. The Lymphatic System. XXI. The Nervous System. XXII. Public and Private Hygiene. XXIII. Food in Health and Ill-Health. XXIV. Conclusion—The Medical Man at the Bedside.—APPENDIX: Salicylic Acid; Jaborandi; Hydrobromic Acid. INDEX.

It will be seen from this that the scope of this work is not dissimilar to the well-known "Principles of Medicine," by Dr. J. C. B. Williams, now long out of print, which in its day met with such unusual acceptance. More practical in its character, however, it seeks to bring to the aid and elucidation of positive therapeutics, the vast accumulation of scientific facts and theories made by the present generation, pointing out the measures to be adopted at the bedside, and establishing them on firm rational grounds. Such a work, by a first-rate man, and fully up to the advanced condition of science, cannot fail to prove of the utmost service to both student and practitioner.

It is our honest conviction, after a careful perusal of this goodly octavo, that it represents a great amount of earnest thought and painstaking work, and is therefore one of those books which both deserve and are likely to survive. This book, although written ostensibly for the young and inexperienced, may be very profitably studied by those who have been practising their profession, more or less empirically, for thirty or forty years. We particularly commend the chapters on Public and Private Hygiene, Food in Health and Ill-Health, and the Conclusion—the Medical Man at the Bedside. The last is hightoned and indicates much shrewdness of observation. Our space will not admit of further quotation. We content ourselves with again recommending the book very cordially.—*Edin. Med. Journ.*, Jan. 1877.

It is of great advantage to the practitioner to have general principles to guide him, and that he should not, when confronted with an assemblage of pathological symptoms, be at the mercy of an unreasoned experience of a similar case, or be obliged to swear *in verba magistri.* He will find reasons in this work for not looking upon drugs, as grouped in fixed and unalterable categories, but learn when and why he may give opium to cause purgation, and castor oil to check it. We strongly commend it to our readers.—*The London Practitioner*, Jan. 1877.

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We are very much pleased with Mr. Schafer's book. It is clearly written, well and originally illustrated, and possesses the merit of being both concise and complete. In conclusion, we may say that any student who has gone fairly over the ground covered by this treatise, will find that he has not only gained a mastery over the modern methods of microscopical investigation, but a sound knowledge of the several structures of which the body is composed.—*Lond. Lancet*, Jan. 2, 1877.

HENRY C. LEA, Philadelphia.

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CLINICS.

CLINICAL LECTURES.

On Syphilitic Epilepsy. By M. CHARCOT, Professor of Pathology at the Faculty of Medicine, Paris, etc.

Partial or hemiplegic epilepsy is one of the most frequent affections attendant on cerebral syphilis. I have recently had an opportunity of treating several cases, and shall proceed to point out some special features connected with this form of the disease, and the rapid manner in which the bold administration of certain remedies will frequently triumph over it. The following case may serve as an introduction to my remarks:—

On the 13th December, 1874, I was called in consultation to visit a gentleman, æt. 42. For several months he had laboured under a serious cerebral affection, which confined him to his bedroom. The patient counted the date of attack from the month of July, 1874. One day, while sitting at his desk, and without any premonitory symptoms whatsoever, he was seized with violent convulsive movements in the right leg. They lasted for a very brief time; the limb then became rigid, was elevated for a moment, and the patient fell unconscious on the floor. The attack was not repeated, and the patient was able to resume his duties as a banker's clerk. In the month of September following, while getting off an omnibus, he had a second attack, precisely similar to

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the former one, but the effects were more lasting, slight weakness of the right side and considerable confusion of the intellectual faculties remaining. The third attack took place in November of the same year. On this occasion the prodromata were of longer duration, and the patient was enabled to observe that the convulsive movements, followed by rigidity, commenced in the leg, and very soon afterwards extended to the arm. He soon fell insensible to the ground, but a bystander observed that the head was drawn to the right side, that the face on the same side was spasmodically affected, and that the whole right side of the body became finally convulsed. This access was attended by stertorous breathing; some disturbance of articulation and a sense of numbness in the right cheek; the last two remained for a few days, and then subsided.

The history of the case pointed towards syphilis, but no actual syphilitic lesion was discoverable. On going back further, however, some light was obtained. When 30 years of age the man had contracted indurated chancre, followed by roseola and other constitutional symptoms. He underwent the usual treatment for several months, and seemed to have been radically cured, as no recurrence had taken place during a period of ten years. Towards the end of 1873 the general health gave way. The patient fell into a state of cachexia, attended by a peculiar kind of headache. The pain was at first confined to a very limited spot on the temple, above the right eyebrow. It often extended, by nocturnal exacerbations, to the head and occiput.

This peculiar form of headache is especially worthy of note, as it has frequently been noticed by writers on syphilitic epilepsy.

My opinion as to the nature of the case was soon formed, and I recommended what we call the mixed course, viz., mercury and iodide. It appeared, however, that the patient had been submitted to the same treatment for the last twelve months, without permanent benefit. I was not discouraged on learning this, but concluded that we must make a more vigorous attack by giving large doses of the remedy at short intervals. In two months great relief was obtained by mitigation of the leading symptoms, viz., headache, dyspepsia, and weakness of the limbs, while the epileptic attacks had ceased. The patient considered himself free from the disease. I saw him again at the end of 1876. Relapse had not taken place, and the patient, in outward appearance at least, seemed perfectly well.

Partial epilepsy, whether of syphilitic origin or not, generally commences by convulsive movements of the face or arms on one side of the body. An attack commencing in the lower extremity must, therefore, be regarded as exceptional. In some cases, moreover, the disease assumes the appearance of ordinary epilepsy, for the patient suddenly falls down in an unconscious state, followed by convulsions, which are more or less general in character. The imminence of the latter is constantly indicated by severe headache, confined to a limited spot on the side of the head. The pain quickly extends to the face and neck on the same side; but there are exceptions to this general rule, for in several cases I have observed that the premonitory headache occupied two points at the same time, one on the parietal, the other on the temporal region of the opposite side. In these cases the parietal pain was always seated on the side opposite to that of the convulsive movements. Another point to be noted is that the attacks very frequently set in towards evening. The manner of attack, and the succession of convulsive symptoms, are conformable to the rules established by Dr. Hughlings Jackson. That distinguished physician has observed that when the convulsive movements of partial epilepsy, commencing in the arm, tend to become more general, they attack the face before they extend to the leg. If the irregular movements have commenced in the face, the disease extends to the upper extremity first, and then to the legs. Lastly, if it be the lower extremity which is first attacked, the disorder of motor power is seen in the arm first, and then in the face. This constancy in the order of succession is very remarkable, and appears to me calculated to throw light on various questions connected with physiology of disease.

Another point, illustrated by several of my cases, is this: The premonitory headache often occupies a circumscribed spot on one side of the head, while the convulsive movements appear on the other side of the body. This clinical fact is interesting, as it points to a relation between cause and effect; for we know that the cerebral surface which lies beneath the parietal bone, and especially the convolutions bounding the fissure of Rolando (the ascending parietal and frontal convolutions) constitute the motor zone which alone acts on the opposite side of the body, and when irritated produces a disturbance of motor power similar to that seen in partial epilepsy.

Circumscribed gummatous inflammation of the pia mater appears to be the pathological condition most frequently connected with partial syphilitic epilepsy. This has been pointed out by Todd, Echeverria, Lancereaux, and some other writers. It is, however, certain that several other forms of cerebral disease may be determined by this same gummatous meningitis. The variations, as we have good reason to believe, depend on the points of cerebral surface attacked. If we accept the theory founded on recent investigations, the gummatous patches in partial syphilitic epilepsy should be found on, or very near to, the ascending frontal or parietal convolutions. This has not yet been established by actual observation, but I feel confident that the proof is only delayed. So long as the disease has not become inveterate—so long, in a word, as there are intervals of freedom from attack, we are entitled to conclude that the cerebral substance had not been disorganized by the gummatous inflammation of the meninges. Upon this point and its clinical interpretation Dr. Hughlings Jackson has formed a very ingenious theory. To return, however, to therapeutical conclusions, I would insist on the necessity of having early recourse to energetic treatment in all cases of this kind, and not waiting until extension of the superficial lesions has involved the deeper layers of the cerebral substance, for then secondary descending alteration of nerve-tissue will ensue, and the probable consequence will be irremediable and permanent hemiplegia.—*Medical Examiner*, March 8, 1877.

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Epilepsy and Epileptic Vertigo.—Prof. BOUCHUT recently gave a clinical lecture on two cases of epilepsy (*Gaz. des Hôp.*, January 23 and 25) at the Hôpital des Enfants Malades, of which the following is an abstract:—

Epilepsy in children is of very frequent occurrence, and differs greatly both in its etiology and prognosis from epilepsy in adults. It shows itself in two forms—epileptic vertigo (or *petit mal*), and epileptic convulsion (or *haut mal*). Of the 118 cases which Prof. Bouchut has met with, thirty-six were examples of epileptic vertigo, and eighty-two of epileptic convulsion. *Epileptic vertigo* presents itself under the most varied forms. Always of short duration, there is a fugitive loss of consciousness of a few seconds or a minute, during which the face preserves its colour, the eyes are fixed and turned upwards, and the head is immovable, being sometimes thrown backwards or turned to the right. The arms cease to act without becoming convulsed or rigid, and the lower limbs are immovable. If the child is sitting, he does not move beyond bending forwards or on one side, and then recovering the vertical position, like one asleep while sitting. If standing, he may bend and recover himself in the same way, or remain motionless. Sometimes speech is cut short by the crisis, and is resumed after the interruption. In rare cases there is emission of the feces or urine. These vertigos, rare at first, become more and more frequent, and are often unperceived by reason of their short duration or of their occurring at night. They may occur only every month, fortnight, every day, or very many times in a day, so that in one case 180 were counted in one day. These crises may last for several months in this form, infinitely varied, and then pass into the regular epileptic convulsion. In other cases they cease spontaneously or yield to treatment.

Convulsive epilepsy is characterized by sudden and violent convulsive paroxysms, or may be preceded by premonitory symptoms known as the *aura*. Numerous well-marked instances of this aura arising at the extremities are on record, which also show the influence of its destruction on the cure of the epilepsy, and the possibility of arresting a paroxysm by a ligature or forcible compression applied in the track of the aura. When this premonitory symptom does not exist, the instantaneousness of the attack is characteristic. There may be pallor of the face with blanched lips, or this may be red or violaceous, with black lips and swollen neck. To the ophthalmoscope the fundus of the eye is pale in the one case, while in the other its veins are very red and very dilated. The convulsive paroxysm may only last for some minutes, or, subsiding for a moment, it may recommence and thus continue for one or several hours. When a calm has at last become established, the child falls into a more or less comatose sleep, which lasts from one to three hours, awakening with a sense of excessive fatigue. It is rare for these epileptic paroxysms to recur several times in a day, and they usually reappear at irregular epochs; and when they do exceptionally occur periodically, this is especially in girls arrived at the age of puberty and at the menstrual period.

The diagnosis of epileptic vertigo is easy, but the convulsive form may be often confounded with eclampsia, and in girls, with hystero-epilepsy. The mere accidents of the attack do not enable us to distinguish *eclampsia* from epilepsy, our diagnosis being derived from the accessory circumstances of the onset and the return of the convulsions. When the convulsion comes on suddenly and is followed by fever, it is eclampsia, and is the indication of a pneumonia, angina, eruptive fever, or other acute malady. When albuminuric œdema is present, it is also eclampsia, due rather to cerebral œdema than to uræmia. So also when the convulsion is the result of heat, the overcrowding of children, or indigestible aliments, it is due to eclampsia; as it is when it comes on without known cause, in a passing manner and without ulterior repetition. So similar are the intrinsic phenomena of the two diseases, that eclampsia might almost be termed a fugitive epilepsy. In distinguishing *hysteria* from epilepsy, the form of the convulsive accidents has to be taken more into account. Thus, when the loss of consciousness is not very complete, when there is some amount of recollection, and when the attack is announced by some intimate sensation other than aura, and is accompanied or followed by a sense of choking, and cries and laughter, with analgesia or cutaneous anæsthesia, it is hysteria; but when, as in some cases, there is absolute loss of consciousness, without tears or laughter, and profound sleep after the attack, it is hystero-epilepsy. This form is not very frequent in children, and affects chiefly girls after their twelfth year. One point is always a difficult one in the diagnosis of epilepsy—the decision as to whether the disease is essential (*i. e.*, caused by a temporary disturbance of the cerebro-spinal circulation), or whether it is symptomatic of an organic nervous lesion. This difficulty has, however, almost ceased to be one since Prof. Bouchut's researches in cerebroscopy, which are described at length in his recently published *Atlas d'Ophthalmoscopie Médicale et de Cérébroscopie*. If with the convulsions there is papillary œdema, with hyperæmia, neuro-retinitis, or tubercles of the choroid, the epilepsy is certainly dependent upon a cerebral or spinal sclerosis, a partial encephalitis, or some deposit in the nervous substance. If there is no changed condition found in the fundus of the eye, we may believe (without, however, being quite certain) that the epilepsy will only prove temporary.

After a disquisition on the reflex and direct causes of epilepsy, for which we have not space, Prof. Bouchut passes to the prognosis, which he observes is very different in children and adults. Before the age of fifteen epilepsy is generally curable; and the aphorism of Hippocrates, that the epilepsy of childhood is cured after puberty, is entirely true. That it is so probably arises from the fact that the majority of such epilepsies have their origin in the second dentition, when the teeth of a man are placed in the jaws of a child. After puberty they more easily assume their proper places, and the epilepsy ceases with the reflex action which produced it. Epilepsy from direct causes, as from sclerosis or other cerebral or spinal lesion, however, calls for a very different prognosis from those of reflex origin, for although they are sometimes ameliorated they are rarely cured.

In the treatment of epilepsy, wherever there is an aura we should endeavour to destroy it, as arrest of the attacks has been proved to follow the disappearance of this peripheral neuralgia. Thus, deep cauterization in neuralgia of a branch of the intercostal nerve cured the epilepsy in two cases. When the epilepsy is dependent on worms, appropriate vermifuges must be had recourse to; and the dyspepsia with which it is sometimes connected in children should be met by a vegetable and milk regimen, pepsin, small doses of bicarbonate of soda, the waters of Plombières, etc. In irregular second dentition, the removal of teeth which are too long in falling is often attended with advantage. Besides the rational treatment of causes, we may have recourse to antispasmodics which regulate the movements of the capillary circulation, such as belladonna, bromide of potassium, oxide of zinc, ether, chloroform, etc.; but of all these none possesses the same efficacy as the bromide. It may be given united with belladonna in the following formula, but it is upon the bromide that we should chiefly rely; Simple syrup 240, syrup of belladonna 60, and bromide of potassium 20 parts; of this doses of one gramme may be given two, three, four, and even to six times in the day, according to the case. The bromide does not in children produce the ill effects which it sometimes does in the adult, only accidents that have been observed, even in doses of six, eight, or ten grammes per diem, prolonged for some time, being stupor and hebetude, which disappear on diminishing the dose. If it be given in reflex epilepsy, in progressive doses of three or four grammes to children from five to nine years, and of from four to ten grammes to children of ten to fourteen, most of the cases will be cured. When the epilepsy arises from an organic cause, the most that can be done is to render the attacks less frequent. The application of cold externally by means of frequent douches is a useful auxiliary, tending by the cutaneous revulsion it induces to restore the equilibrium of the capillary circulation.—*Med. Times and Gaz.*, March 3, 1877.

HOSPITAL NOTES AND GLEANINGS.

Case of Intussusception successfully treated by Inflation.—On Dec. 14th, a male child, aged six months, was taken to the North Dispensary, Liverpool, and placed under the care of Mr. T. D. Ransford. Just before six o'clock on the previous evening the mother was dandling the child (which seemed at the time quite well and in good spirits, and had not presented any signs of diarrhœa or intestinal disturbance) on her knee. Quite suddenly the baby became pale and seemed in great pain, and broke out into a cold, clammy sweat. At half-past six it passed a blood-stained motion. All night the child was very restless, and got no sleep until 2 o'clock in the morning; it then slept one hour, and then passed blood again, while vomiting had been almost constant from the beginning.

When seen at the dispensary, the child seemed to suffer much from paroxysms of pain, during which he cried out and was very restless; the abdomen was flaccid and not painful on pressure, and an indistinct rounded mass was felt in the left hypochondriac region. He was taken to the Northern Hospital to be treated as an in-patient, but the mother would not consent. Here he was again examined, and as no other abdominal tumour could now be felt, and a rectal examination elicited very different opinions, the diagnosis of intussusception was considered doubtful. Nevertheless an injection of olive oil was tried; this was followed by no other effect than the passage of some clotted blood. The child was then sent home, where it was seen shortly afterwards, and a drop and a quarter of tincture of opium given every six hours.

The child passed a tolerable night up to two o'clock, and passed no more blood; but next day the vomiting and pain continued unabated, and the obstruction seemed to be quite complete. Temperature in rectum 100.4°; pulse 136. At 3.30 P. M. the rectum was examined and found empty, but when the child strained something was felt to impinge upon the finger. The finger was stained with blood and mucus, but there was no trace of feces. Although the child had not vomited since the morning, vomiting occurred during the rectal examination. With the assistance of Dr. Cormac, inflation by bellows was practised for about twenty minutes, some air escaping per anum at each action of the bellows. The child passed about a tablespoonful of blood and mucus when the nozzle of the bellows was withdrawn.

Dec. 16.—The mother states that since the inflation the child has been easier, the vomiting has not returned and at five o'clock this morning he passed a liquid motion free from blood. Flatus has been passed in abundance, and he has had a good night. Child seems nearly free from pain. On digital examination, the rectum offered nothing abnormal, but was found full of feces, which passed in abundance on withdrawing the finger. Takes the breast well. Temperature in rectum 100.2°; pulse 128. For a day or two the opium was continued, with the object of keeping the bowels quiet and of relieving pain, for which hot fomentations were also applied. By the end of the second day everything was left off, and when the child was seen for the last time, on the 22d of December, the mother said he was well as ever, with the exception of being a little pale.

Remarks.—In this case the diagnosis of intussusception was doubted by some, because no abdominal tumour was felt; but West says "it happens in at least a large number of instances that the most careful examination fails to detect anything unnatural." It was also said that the absence of abdominal tenderness contraindicated intussusception; but Bristowe says there is "not necessarily any abdominal tenderness—indeed the patient often finds relief, as in colic, from pressure on the abdominal parietes." But the sudden attack in a previously healthy child seems diagnostic. Nothing else than intussusception could bring on total and sudden obstruction of the bowels, with early passage of blood and paroxysmal pain, in a baby six months old.

As to the treatment, every one will agree that an attempt to reduce the intussusception, either by inflation, or injection, or position, is to be made before other chances are taken into consideration; but, if these fail, is it justifiable to urge abdominal section? In this case the mother was told that if the bowel could not be got back, an operation might be necessary, but that it could not be said that the child was certain to die if it were not done; for although Hutchinson has stated that in cases of intussusception of the large intestine he had never seen a recovery take place, yet Bristowe states that "the results of the separation of the slough seem favourable in about half the total number of cases;" and as to the published statistics of the operation, they are very little to be trusted, for all the successful cases are certain to be published, while many of the unsuccessful cases are not. In a review of the subject, in the *Lancet*, some months since, eighteen cases are said to have been recorded, with eight recoveries. One thing seems certain, that unless an operation is done early in the acute cases, it is better to trust to cure by the bowel sloughing, for in one case of abdominal section which Mr. Ransford saw in a child, the intussusception could not be reduced, and the operation did no good. In the chronic cases death seems to take place from exhaustion, often before any inflammation or sloughing has taken place; and in this class no doubt abdominal section gives a very fair chance of recovery a long time after the symptoms have set in, as the cases of Messrs. Hutchinson, Marsh, and Howse prove.—*Lancet*, Feb. 24, 1877.

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Chorea treated by Strychnia and Ether-Spray.—Dr. J. Magee Finny reported to the Medical Society of the College of Physicians of Ireland (*British Med. Journal*, Jan. 6, 1877) four cases treated by these means. Case I. was one of severe chorea in a boy aged 13, without any history of rheumatism or of cardiac disease. The treatment by sulphate of strychnia, administered as recommended by Hammond (*Diseases of the Nervous System*, sixth edition, page 720), and by ether-spray along the back, was commenced a fortnight after the illness began. Immediate benefit was followed by recovery in fifteen days. The total duration of illness was, therefore, four weeks and one day. Case II. was one of severe primary bilateral chorea in a girl aged 11, without history of rheumatism or of cardiac disease. Improvement set in after four days' treatment; cure was complete in twenty-five days. The total duration of illness was six weeks and three days. Case III. was one of severe primary bilateral chorea in a boy aged 9; no rheumatism or cardiac complication. Improvement took place, but he left hospital before he was cured. Case IV. was one of chronic chorea, with relapses, in a young lady aged 15. The treatment led to considerable improvement in a week. The treatment of chorea ought to fulfil two indications: to shorten its duration, and to temper and moderate the more distressing symptoms; and, should it fulfil these, it deserves to be valued as useful. Reviewing the foregoing cases, the author would say of strychnia that, in the two cases in which its administration was fully and regularly carried out, it fulfilled the first indication by shortening the disease, and in those cases it rapidly alleviated the symptoms and quieted the movements. As far, therefore, as these cases go, strychnia proved to be well suited and the proper treatment. To come to any definite general conclusion on such a subject, without much and extended observation, would be in the highest degree reprehensible; but it is also the more the duty of each clinical observer to record the results of his experience.

Dr. MacSwiney referred to recent theories as to the pathology of chorea. Dr. Dickinson found in twenty-two fatal cases that there was universally present a dilated condition of the bloodvessels of the brain and spinal cord, and in many cases effusion of blood into the brain and spinal cord. The relationship between chorea and rheumatism was very remarkable. If the dilatation theory were correct, the efficacy of the cold of ether-spray and the peculiar therapeutic effect of strychnine could be understood. It had been recently stated that there were grounds for believing that hypermetropia occurred in all cases of chorea, and that the cure of the chorea could be effected by using glasses to correct the hypermetropia.

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A Case of Lithotrity where Nitric Acid Injections were employed.—The solvent action of nitric acid upon the *débris* of a phosphatic calculus was well illustrated in the following case, which in many respects is similar to one recorded by the late Mr. Southam, of Manchester, and alluded to by Dr. W. Roberts in his Observations on the Solvent Treatment of Phosphatic Calculi. (*On Urinary and Renal Diseases*, second edition.)

William C., a police officer, aged 45, was admitted into the Liverpool Royal Infirmary, under my care, on March 9th, 1875. The patient had recently been under the observation of my friend Dr. J. S. Clarke, who, having diagnosed the existence of a stone in the bladder, advised his admission into the infirmary.

Upon examination, I found a single stone, rounded and having a diameter of two inches and a quarter. The urine was alkaline, and contained pus. Though the stone was large, I deemed the case not unfavourable for lithotrity. The patient required some preparatory treatment, and I was not able to commence lithotrity till April 5th. I repeated the crushings during April and May twelve times.

The patient never experienced any unfavourable symptom, and a very considerable quantity of broken-up stone was passed. As in Mr. Southam's case, to which I have alluded, it appeared to me that fresh phosphatic depositions were taking place almost as fast as the others were removed. I resolved, therefore, to use nitric acid injections.

On May 27th (two days after a crushing), I had the urine of twenty-four hours' collection. This was analyzed by Dr. J. Campbell Brown, who gave me the following report: The quantity of urine submitted to analysis was sixty ounces; this was found to contain 74.029 grains of phosphoric acid as alkaline earthy phosphates; 250.516 grains of phosphoric acid as alkaline phosphates; in all, 324.545 grains of phosphoric acid passed in twenty-four hours. On the termination of this twenty-four hours, I injected into the bladder half a pint of tepid water with two drachms of diluted nitric acid.

All the urine passed during the subsequent twenty-four hours was kept and analyzed by Dr. Brown, with the following result: The quantity of urine submitted to analysis was seventy-eight ounces; this was found to contain 96.237 grains of phosphoric acid as alkaline earthy phosphates; 461.94 grains of phosphoric acid as alkaline phosphates; total, 558.177 grains of phosphoric acid passed in twenty-four hours.

Thus it appears that not only was a larger quantity of phosphate of lime and magnesia dissolved in the urine after treatment with nitric acid, but there was a still greater increase in the quantity of phosphoric acid passed in the form of alkaline phosphates. It is to be noticed that the quantity of urine on the day after treatment was greater than on the day before; and that, if, instead of estimating the total phosphates, we estimate the percentage of phosphates in the urine, we find that the percentage of alkaline earthy phosphates was very nearly the same after as before treatment, namely, increased from 0.272 to 0.282, and that the percentage of alkaline phosphates was increased from 0.95 to 1.35. But the absolute increase of phosphates is much more marked.

On nine subsequent occasions the lithotrite was employed, and, on every second or third day afterwards, the bladder was injected as before with nitric acid in tepid water. Further observations, though made in a rougher manner, showed the increase of the alkaline phosphates after each injection; it was also noticed that the fragments passed were much more finely triturated than previously.

Under this treatment the patient made a good recovery, and left the infirmary quite well on June 21st. The total quantity of broken-up stone collected weighed four drachms. The use of the acid appeared to me at once to stop any further deposition of phosphates, and to facilitate the removal of the pieces as they were broken up by the lithotrite.

Dr. Roberts concluded his observations on Mr. Southam's case with the remark (*op. cit.*, p. 313): "This method is evidently capable of wider application than is now made of it by surgeons."—*British Med. Journal*, Jan. 6, 1877.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

Lister's Antiseptic Method.—Dr. J. S. Billings, of the U. S. Army, in a lecture (*Med. Record*, March 3, 1877) delivered in Baltimore shortly after his return from Europe, spoke of the antiseptic method as follows:—

"I was acquainted with Mr. Lister's teachings before visiting Europe, and assented to them in a theoretical sort of way; but at the same time I looked upon the antiseptic method as being the latest fashion, and therefore probably overpraised. But after learning the result of its employment in the hospitals at Bonn, Leipzig, Berlin, and in certain wards in London, and especially after an examination of Mr. Lister's wards in the Royal Infirmary at Edinburgh, and seeing the cases dressed in all stages after operations—operations such as opening the knee-joint, or upon abscesses of spinal origin—I came to the conclusion that this method is the most important contribution to our resources in surgery which has been made since the discovery of anæsthesia. Not that the details of the method are perfected, for probably much may yet be done to simplify it, and we may perhaps discover a better material for the purpose than carbolic acid; but we now may be said to know positively, instead of merely conjecturing, that the process of putrefaction is due to minute solid and semi-solid particles floating in the air, and that Mr. Lister has devised a method by which these particles can either be kept out of a wound made by the surgeon, or by which they will have their power of producing the putrefactive change destroyed, is, I think, beyond doubt.

"The fact that the various changes in organic matter which we know as fermentations, putrefactions, etc., are due to minute organisms, which organisms are not spontaneously developed, but arise from similar organisms only, is one of great importance in hospital management."

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Improved Adhesive Plaster. — With a view to overcome the disadvantages of the common adhesive plaster Dr. MARTIN, of Roxbury, has devised (*Boston Med. and Surgical Journal*, March 8, 1877) an improved plaster composed of India rubber and Burgundy pitch in about equal proportions, a very small amount of some other gum-resins and less essential substances, introduced chiefly for convenience of manipulation. The adhesive compound is spread upon a strong drilling cloth, and presents the following important advantages; it contains no solvent whatever, and hence can be used with impunity upon the most sensitive skin. When brought into apposition with the skin, it adheres at once and at all temperatures, without the application of heat, and instead of losing its hold after a while, it clings with increased tenacity, not becoming detached or loosened, even when the parts around it are bathed with cold or tepid water. This peculiar adhesiveness and the strength of the cloth upon which it is spread constitute its chief advantages. Experiments are being made with a view to applying the adhesive compound to water-proof cloth, applicable to certain surgical exigencies; and if these attempts are successful, the last desideratum will have been met.

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Honours to American Physicians.—At the meeting of the Obstetrical Society of London, held on the 7th of February, Dr. E. R. Peaslee, of New York, was elected Honorary Fellow, and Drs. William Goodell, of Philadelphia, and Horatio R. Storer, of Boston, were elected Corresponding Fellows.

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Medical Graduates in 1876.—

University of Pennsylvania . .	121
Jefferson Medical College (Phila.) .	198
Coll. of Phys. and Surgeons, N. Y.	118
Bellevue Hospital Med. Coll., N. Y.	147
University of the City of New York	157
Rush Medical College, Chicago .	103
Missouri Medical College . .	65
St. Louis Medical College . .	51
Medical College of Ohio (Cincinnati)	80
Albany Medical College . .	38
Buffalo Medical College . .	30
Coll. of Phys. and Surgeons, Ind. .	23
Medical College of Indiana . .	22

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OBITUARY RECORD. — In New York, March 6th, GURDON BUCK, M.D., aged seventy years

Dr. Buck is perhaps best known to the profession by his advocacy of the weight and pulley treatment of fractures of the thigh, and by his contributions to plastic surgery.

—— at Boston, on the 19th of February, aged 56 years, CHARLES E. BUCKINGHAM, M.D., Professor of Obstetrics and Medical Jurisprudence in Harvard University.

FOREIGN INTELLIGENCE.

Relief of Pain by the Outward Application of Hydrate of Chloral.—Dr. W. B. KESTEVEN (*Lancet*, Feb. 10, 1877) calls attention to the benefit to be derived in the relief of pain by the external application of hydrate of chloral, for the knowledge of which he is indebted to his friend Dr. T. S. Dowse, of the Central London Sick Asylum, Highgate. The vast field that is afforded by these metropolitan institutions for the cultivation of practical medicine is not neglected by Dr. Dowse, but is turned by him to good account. The results of the trial of hydrate of chloral as an external application have lately been given. Dr. Kesteven adds his experience of this mode of using this drug, in order that it may become more widely known.

He has tried it with great success in neuralgic pains and in cancer of the breast, in cases in which other sedatives and narcotics have failed to give relief.

The mode of application is by the saturation of folds of lint of the size of the part to which it is to be used, brought into close contact, then covered with three or four layers of lint covered with oil-silk or spongio-piline wrung out of hot water. The application to raw surfaces, of course, requires some care in manipulation.

The strength of the solution is about four drachms to sixteen ounces of water. The addition of a small quantity of glycerine is advantageous. Chloride of zinc or perchloride of iron can be combined with the chloral in certain cases.

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Salicylic Acid.—M. A. Robin asserts, in a communication to the Biological Society of Paris, that, in typhoid fever, salicylic acid almost constantly diminishes the quantity of urine excreted, and the quantity of indican increases under its use; moreover, it produces ulceration of the back of the throat, and even consecutive œdematous inflammation of the larynx. He recommends very dilute solutions in typhoid fever, for fear of arresting the flow of urine. He had observed a buzzing in the ears as the result of the use of salicylic acid. M. Leven is opposed to the use of this substance in typhoid fever. Powerless in small doses, it causes serious troubles in the digestive system, which are especially dangerous in that disease. M. Lepine finds, also, that the acid is very slightly excreted in typhoid, and that it produces a buzzing in the ears, but less intensely and less constantly than with quinine. Valuable in some cases of acute rheumatism, it renders no service in typhoid fever.—*British Med. Journal*, Feb. 10, 1877.

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Cantharidian Cystitis.—Under this title Dr. Vézien gives (*Rev. Médicale*, Feb. 12) an account in the *Journal de Pharmacie d'Alger* of an affection of the genito-urinary organs, which he says the military surgeons are familiar with among the soldiers in Algeria. It has been commonly termed by them urethritis, but it is really a cantharidian cystitis, easily recognizable by its symptoms. Its origin is a curious one, it being produced by eating the flesh of frogs, which in the months of May and June feed almost exclusively upon vesicant insects belonging to the tribe of cantharides. The irritating properties of these coleoptera are found in the flesh of the frog, which in a certain number of instances produces this affection in those who partake of this food.—*Med. Times and Gaz.*, March 3, 1877.

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Scrofulous Ulcers: Red-Lead and Cinnabar Plaster.—In his wards at the hospital of Saint-Louis, M. Vidal has for several years made use of a plaster which he considers very afficacious in cleansing the greater number of ulcers and scrofulous sores. Its composition is as follows: Diachylon plaster, 26 parts; red-lead, 2.50 parts; cinnabar, 1.50 parts.

These ingredients are thoroughly mixed and spread upon a piece of calico like an ordinary diachylon plaster; small pieces of the plaster are used a little larger than is sufficient to cover the ulcer. It is a very appropriate mode of treatment, and may be easily employed for a long time. M. Vidal recommends it strongly.—*London Med. Record*, Feb. 15, 1877.

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Ovariotomy at the Samaritan Hospital.—The year 1876 has been the most successful on record at the Free Samaritan Hospital—the operation of ovariotomy having been performed fifty-five times with only five deaths. Forty of these were performed by Mr. Spencer Wells, with four deaths; seven by Mr. Bantock, with one death; and eight by Mr. Knowsley Thornton, without a death. The fifty-five cases include many in which both ovaries were found diseased and removed; and many of the operations were most formidable from the nature and extent of the adhesions. No case in which the diagnosis of ovarian tumour was made was refused the operation, however bad the prognosis, provided the patient still wished to have the last chance when the extra danger of her case had been fully explained to her. We believe these are the best results yet published, either in hospital or private practice; and if there are any members of the profession who still have doubts as to the advisability of ovariotomy, we commend these cases to their consideration.—*Med. Times and Gaz.*, Feb. 17, 1877.

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The Protective Results of Revaccination.—The following facts should be considered sufficient to establish the importance of revaccination in the minds of those few who may still have any lurking doubts on the subject. Dr. GAYTON, Medical Superintendent of the Smallpox Hospital at Homerton, reports under date January 30 last: "During the present epidemic, fifty-six fresh servants have been engaged here; of these, twenty-seven had previously suffered from smallpox, and twenty-eight were revaccinated on taking office. One who was, unfortunately, not reported to me, and who had neither been vaccinated since infancy nor previously had smallpox, speedily contracted it. With this exception, our staff has enjoyed perfect immunity." Dr. COLLIE, Medical Superintendent of the Fever Hospital at Homerton (now devoted to smallpox patients), says, in his report dated January 31 last: "About twenty-five persons in the service of this Asylum have been revaccinated during the present epidemic. None of these have contracted smallpox." This recent testimony confirms the report which was presented by a committee to the Metropolitan District Asylum Board in 1872, in which it was stated that "the necessity of revaccination, when the protective power of the primary vaccination has to a great extent passed away, cannot be too strongly urged. No greater argument to prove the efficacy of this precaution can be adduced than the fact that of upwards of 14,800 cases received into the hospitals, only four well-authenticated cases were treated in which revaccination had been properly performed, and these were light attacks. Further, conclusive evidence is afforded by the fact that all the nurses and servants of the hospitals, at one time to the number of upwards of 300, who were hourly brought into contact with the disease, who constantly breathed its atmosphere, and than whom none could be more exposed to its contagion, have, with but few exceptions, enjoyed complete immunity from its attacks. These exceptions were cases of nurses or servants whose revaccination, in the pressure of the epidemic, was overlooked, and who speedily took the disease; and one case was that of a nurse who, having had smallpox previously, was not revaccinated, and took the disease a second time." Revaccination is to the general public what the safety-lamp is to the miner; it affords a protection which only exceptional circumstances render inefficacious.—*Med. Times and Gaz.*, Feb. 10, 1877.

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A Smoker's Disease.—M. MAURIAC, Surgeon of the Hôpital du Midi, has just added another to the special diseases of smokers. He has described, under the title of *plaque des fumeurs*, a morbid change of the mucous membrane of the tongue and mouth, a special psoriasis. This lesion may degenerate into epithelioma; and, according to M. Mauriac, cancer of the lips and tongue has often no other origin than this. Both are common among men, and very rare, as might be supposed, among women.—*London Med. Record*, Feb. 15, 1877.

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On the Use of the Ophthalmoscope in Nervous Diseases.—For fourteen years it appears that M. BOUCHUT has reviewed in the month of December his ophthalmoscopic work at the Children's Hospital, Paris. In a clinical lecture reported in the *Gazette des Hôpitaux*, January 4, he gives the first part of his review for 1876. The record of cases is exceedingly valuable, but we venture to doubt whether these or any other cases will justify the extraordinary pretensions which M. Bouchut makes for ophthalmoscopy in a diagnostic point of view. We do not wish to dispute M. Bouchut's claim to having at least largely helped to diffuse the knowledge and employment of this mode of research, but what can be thought of the following paragraph? "To-day the cranial cavity is no longer closed to observation as it was in the olden time, before the first works which I published in

1862." "*That which occurs in the meninges, in the brain, and in the spinal cord, can be recognized in the fundus of the eye by alterations visible with the ophthalmoscope.*" "We can, from a physical phenomenon observed in the eye, draw conclusions as to a cerebro-spinal alteration, just as from a cardiac or pulmonary murmur we can deduce this or that lesion of the heart or the lungs."

To begin with, the cranial cavity was not absolutely closed to observation before the year 1862. M. Bouchut has devoted himself to children's diseases. Let us take one of the most insidious of the nervous diseases of children—viz., tubercular meningitis. A Scotch physician (Dr. Robert Whytt) had come to a very shrewd diagnosis, and written a clinical account of this disease, which has never been surpassed, more than ninety years before M. Bouchut began his ophthalmic expositions. But has M. Bouchut so completely opened up the cranial cavity to observation? Let us consider the significance of one, and that the most important, of the opthalmoscopic appearances observed in diseases of the cerebro-spinal system—viz., optic neuritis. Surely Dr. Hughlings-Jackson's dictum ("double optic neuritis generally means 'coarse' disease within the skull") embraces all that we are justified in concluding when we find this condition in any given case. Nobody has insisted more strongly than Dr. Jackson that optic neuritis does not help us more than this. We neither learn from it the nature of the change, nor the locality of the change; and the mechanism of the connection between optic neuritis and coarse cerebral disease is still inexplicable. There are, indeed, most important limitations to the dictum itself. Firstly, the neuritis may be idiopathic, or, at all events, unassociated with any cerebral disease to be discovered post-mortem. In a case of Mr. Brudenell Carter's there were typical choked disks, but post-mortem examination disclosed the existence of kidney disease, and no brain disease at all. Secondly, when optic neuritis and cerebral disease are associated, the latter is not always coarse—tubercular meningitis, for instance. Thirdly, there may be "coarse" cerebral disease without optic neuritis (*vide* Dr. Hughlings-Jackson, *Ophthalmic Hospital Reports*, May, 1876). Similar remarks might be made on other ophthalmoscopic phenomena. For example, we recently saw post-mortem a well-marked case of tubercle of the choroid in a patient who, though manifesting abundant miliary tubercle in the abdomen and throrax, had none in the brain or its membranes. But if we are greatly in the dark about their interpretation in cerebral diseases, how little do ophthalmoscopic changes teach us respecting the nature of spinal-cord disease! Suppose M. Bouchut finds atrophy of the optic nerve in a case of locomotor ataxy, how much does that positively teach him as to the extent and position of the lesion? To dogmatize on the results of a method of research which is still in its infancy appears to us only calculated to discredit it altogether. But to whatever perfection ophthalmoscopy may be brought, neither the ophthalmoscope nor any other instrument will free us from the necessity of considering any given case in its clinical entirety—the symptoms and the history as well as the signs.—*Medical Times and Gaz.*, Feb. 17, 1877.

One-sided Deafness in relation to Military Service.—At a recent meeting of the Medical Society of the Vienna Garrison (*Feldarzt*, December 12), Prof. POLITZER was invited to give his opinion as to whether one-sided deafness should act as a disqualification for active military service, which it does in the German army. In reply, he observed first, that persons who were partially or totally deaf on one side, very frequently heard just as well, especially at long distances, as those whose ears were in quite a normal state. But this one-sided deafness is connected with an anomaly in hearing which is of the highest importance—that is, it is accompanied by an impossibility of judging of the direction of sound. Even in the normal condition of the organ of hearing, the power of judging of this is possessed only in an imperfect degree; for the distinguishing the direction of the sound is no act of the sensation itself, but is the result of our judgment, based on preceding experience. The source of sound will be referred to the right or left accordingly as the sound strikes the one or other ear more forcibly; but our judgment as to its direction becomes entirely uncertain if both ears are in the same position as regards the source of sound—when we are frequently unable to decide whether the sound comes from before or behind. Prof. Politzer having observed that so many persons suffering from diseases of the ear not only were not able to indicate the direction of the source of sound, but frequently referred it to quite the opposite of the reality, instituted some experiments. He found that if a loud-ticking watch be held over the vertex of a person with closed eyes, and moved over the head from before backwards, he will not be able to state with certainty whether the watch is in front, above, or behind. Whenever he closes one ear, the sound of the ticking is immediately transferred to the side of the open ear. Although our judgment concerning the direction of the source of sound is greatly assisted by the sense of sight, yet, even with this aid, the decision on the point will be surprisingly altered if one ear be closed. When this is done, the ticking of the watch placed over the vertex, even if its position be seen, will be projected in the direction of the unclosed ear. From these and other experiments, Prof. Politzer concludes that our judgment concerning the direction of sound can only be determined by binauricular hearing, and even with this we are not always able to be certain. Similar results followed trials with speaking. Most surprising were the errors made in well-marked one-sided deafness. Even with the greatest attention the subjects of this were often unable to detect the direction of the sound until they saw the object producing it, or had acquired the knowledge by frequent change of position of the head. This was very remarkable in the hunting-field, when the sounds were often supposed to come from the opposite direction, if the deaf ear was turned towards the spot whence the sound came.

From the foregoing it results that the exemption of persons with one-sided deafness from active military service is amply justified. It is evident that the placing such persons as outposts on a dark night might give rise to dangerous consequences. —*Med. Times and Gaz.*, Feb. 10, 1877.

Action of Metals in Anæsthesia.—At the meeting of the Biological Society, January 13, Prof. Charcot gave an account of some experiments now carrying on at the Salpétriére, with the aid of M. Burq. It is well known, he observed, that in hysterical patients one side of the body is often struck with anæsthesia, which is not transitory, but permanent. Now, if in a certain number of such cases a twenty-franc gold coin or two be placed on some part of the anæsthetized side, it will induce in fifteen or twenty minutes a return of sensibility throughout a zone extending from five to ten centimetres above and below the points on which such coins have been placed; and this sensibility will persist throughout a whole day. In other hysterical subjects gold produces no such effect, and copper requires to be employed, while in others it is zinc; but it is gold which most frequently so operates. One day, M. Charcot, wishing to show those who accompanied him how evident the hemi-anæsthesia was in a hysterical patient, traversed the length of her arm with a long needle. The patient uttered a terrible cry, and it was then ascertained that M. Burq had applied the metal to her arm the same morning. Not only does the sensibility return, but there is an elevation of temperature, and the dynamometer indicates an increase of force. The return of sensibility does not take place suddenly, the patient feeling first by cross-purposes, *e. g.*, ice will feel like a hot body. It is well known that hysterical anæsthesia disappears under the influence of faradization, and it may be asked whether these metallic applications give rise to a simple electrical phenomenon. This is a question which will be decided by an investigation by physical and physiological experts which is now being made. However this may be, the fact itself has been proved in the plainest manner. Without adopting M. Burq's views on what he calls metallotherapeutics, Prof. Charcot acknowledges that his point of departure is perfectly exact. He added, that the metals act not only on the anæsthesia of the hysterical, but furnish absolutely the same results when this is due to organic causes, *i.e.*, dependent on cerebral lesion.—*Med. Times and Gaz.*, Jan. 27, 1877.

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Cases of Retarded Putrefaction and Prolonged Rigor Mortis.—M. Tarchini Bonfanti records two remarkable cases of retarded putrefaction and prolonged rigor mortis that fell under his observation in Milan. Two women were found with their heads battered in, and who had died with profuse hemorrhage. Rigor mortis was fully developed, and little or no putrefaction, and he and several other surgeons and physicians at first believed that not more than thirty-six hours could have elapsed since death had taken place. On consideration, however, it occurred to him that the temperature had been persistently low (50° to 54° Fahr.), the atmosphere dry, the air in the rooms had been but little changed in consequence of the windows and doors being closed, and the amount of light admitted was small. The bodies were lying on a Dutch-tiled floor, were extremely exsanguine, contained very little food in the digestive tract, and the death had evidently been sudden. The mistress was old and tolerably well-nourished, the servant thin and young. From these circumstances, all of which were favourable to the prolongation of the state of rigor mortis and the prevention of putrefaction, M. Tarchini Bonfanti arrived at the conclusion that a longer period than thirty-six hours had probably elapsed, and they might have remained in the condition in which they were found for seventy-two hours, or three days, or even longer. On the trial of the assassin it proved that death in the above cases had taken place four days and a half prior to the discovery of the bodies. The cases are important from a medico-legal point of view, as showing the caution that should be exercised in pronouncing upon the date of death from the presence of rigor mortis and the absence of putrefaction.—*Lancet*, Feb. 10, 1874.

Influence of Coloured Lights on Maniacs.—Dr. Taguet, Physician to the Asylum of Ville-Evrard, has experimentally investigated the sensational statements of Dr. Ponza as to the influence of coloured light in subduing the violence of mania. In a room whose windows were of blue glass, and whose walls were painted the same colour, a patient labouring under strong maniacal excitement was placed for three hours. The light seemed to fatigue him as he kept his eyelids closed during most of the time, but no calming tendency was apparent. For several days the experiment was continued, but with negative results. The second case was one of acute mania with refusal to take food, etc.; there was no improvement. A number of others were tried, including some hysterical patients, but in all cases the light seemed to weary rather than soothe them. The Director-General of the Asylum at Moscow has given a full trial to the new treatment, but without the slightest result.—*Dublin Journal of Med. Sci.*, Jan. 1877, from *Annales Médico-Psychologiques.*

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Deaths from Chloroform.—Mr. J. H. Wilson, of Peterborough, records (*Lancet*, Feb. 10, 1877) a case of this after the inhalation of two drachms of the anæsthetic, by a man aged 52 years, suffering from strangulated inguinal hernia.

The *British Medical Journal* for January 20 reports a case which occurred the preceding week at University College Hospital. The anæsthetic was taken for removal of a piece of carious bone from the stump of an arm. The patient had taken ether safely at a previous operation.

The same journal for the succeeding week contains the reports of two more cases. One occurred at the Wolverhampton and Staffordshire General Hospital, the chloroform having been inhaled prior to the amputation of a fractured fore-finger; the other case was that of a lady who was to undergo an operation for removal of a tumour from the throat.

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A New Poison.—At the meeting of the Academy of Sciences of the 7th inst., a new poison was presented by M. Vulpian for MM. Ernest Hardy and Gallois. It is named inea, and is a heart-poison already studied in France by MM. Pollaillon and Carville, and in England by Dr. Fraser. Like digitaline, but in a stronger degree, it kills frogs and other animals, the heart being in systole. The discoverers scarcely know as yet how to class it, but they are convinced that it is not an alkaloid.—*British Med. Journ.*, Feb. 24, 1877.

A Catalogue of Works on Naval and Military Medicine.—Dr. FRIEDRICH FRAENKEL, of Glogau, a German army surgeon, is issuing a systematic catalogue of every work which deals with the relations of medicine to the requirements of soldiers and seamen, in the hope that it may be of service to those who are engaged in literary work connected with these subjects. It appears under the title of "Bibliotheca Medicinæ Militaris et Navalis: contributions to the literature of military and naval medicine," and is published by Gutmann, of Berlin. It is appearing in parts, in which the works are arranged (*a*) alphabetically according to the authors' names, and (*b*) according to the subjects. Dr. Fraenkel desires the co-operation of all writers on military hygiene, etc., librarians, societies, and others, in completing the catalogue; and any works which may be forwarded to him will be returned within a short period.—*Med. Times and Gaz.*, Jan. 6, 1877.

German Surgical Chairs.—Prof. CZERNY, of Freiburg, has been called to Heidelberg to occupy the Professorship of Surgery vacant by the death of Professor Gustav Simon; and Professor Maas, of Breslau, succeeds him at Freiburg.—*Med. Times and Gaz.*, Jan. 27, 1877.

Personal.—Sir James Paget, Bart., has been gazetted Sergeant-Surgeon in Ordinary to the Queen, vice Sir William Fergusson deceased. Mr. Prescott Hewett, President of the Royal College of Surgeons, has been appointed Sergeant-Surgeon Extraordinary, succeeding Sir James Paget in that honourable office; and Mr. John Eric Erichsen, Surgeon to University College Hospital, in recognition of his long and distinguished career as a practical and scientific surgeon, has been appointed one of her Majesty's Surgeons Extraordinary. It is rumored that Mr. Prescott Hewett will shortly be made a baronet.

OBITUARY RECORD.—At Berlin on the 24th of January, aged 80 years, Dr. Johann Christian Poggendorff, Prof. of Physics at the University of Berlin. Dr. Poggendorff is best known to the profession as the editor of the *Annalen der Physik und Chemie*, which position he filled for fifty-two years and until his death.

—— at London, on the 11th of February, aged 69, Sir WILLIAM FERGUSSON, Bart., Sergeant-Surgeon to H. M. the Queen, and Senior Surgeon to King's College Hospital.

Sir William was a Scotchman by birth, and studied medicine at Edinburgh. In 1840 he removed to London to accept the Chair of Surgery in King's College. He was specially distinguished for his advocacy of conservative surgery. He was a skilful, brilliant, and imperturbable operator, and his professional judgment was held in the highest esteem. As an instance of his coolness the following anecdote is told: Once, when operating for the removal of a deep-seated tumour of the neck, a fearful gush of blood announced the severance of a large artery. An assistant promptly thrust his finger into the wound to arrest the flow, when Fergusson coolly said, "Jist get your finger out of the way, mon, and lets see what it is," and quietly securing the vessel, completed the operation.

His contributions to literature were few, the chiefest of them being his *Practical Surgery*, published in 1842, and his *Progress of Anatomy and Surgery in the 19th Century*, published in 1867. He will always be remembered for those changes and improvements in surgery which he introduced, and which include his operations for hare-lip and cleft-palate, excision of joints (especially of the hip and knee), and removal of the upper jaw with the labio-nasal incision. Sir William was created a baronet in 1866, and in 1867 he was appointed Sergeant-Surgeon to the Queen. In 1870 he was elected President of the Royal College of Surgeons.

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This portly volume is a marvel of condensation. In a style at once clear, interesting, and concise, Dr. Bristowe passes in review every conceivable subject connected with the practice of medicine. Those practitioners who purchase few books will find this a most opportune publication, because so many topics not usually embraced in a work on practice are adequately handled. The book is a thoroughly good one, and its usefulness to American readers has been increased by the judicious notes of the Editor.—*Cincinnati Clinic*, Jan. 6, 1877.

But any one who wants a good, clear, condensed work upon Practice, quite up with the most recent views in pathology, will find this a most valuable work. The additions made by Dr Hutchinson are appropriate and useful, and so well done that we wish there were more of them.—*Am. Practitioner*, Feb. 1877.

It is impossible to look over its pages without being impressed with the amount of information which they have been made to contain, with no appearance of conciseness at the expense of completeness. A superficial survey even shows that, as a text-book, it is far in advance of those published only a few years ago; and a more careful examination of some of its sections—such, for example, as the one devoted to diseases of the nervous system—demonstrates that in provinces which have accomplished the greatest advances of late years, the author has kept his work quite abreast with the labors of the most reliable clinical observers. Features quite unusual in a purely medical treatise are included in the shape of excellent chapters on diseases of the skin, the affections of the genito-urinary organs in females, which can but result in lessening the tendency on the part of the general practitioner to neglect the important classes of complaints with the feeling that, like derangements of the chief organs of the special senses, they can better be managed by specialists.—*New Remedies*, Nov. 1876.

We recommend highly this book, and feel justified in doing so by the thought that, of its class it is the best we have yet seen. The judicious remarks of the American editor add very much to the value of the work. His jealous guard over American medicine is most praiseworthy: in fact, our only complaint is that so little of his own well-known style appears.—*Obstet. Journ. of Great Britain and Ireland, Am. Suppl*, Nov. 1876.

While he has done what he really intended to do, viz., presented every subject with all possible conciseness and brevity, there is nothing to warrant the conclusion that such a result is due to any want of that thorough preparation and knowledge requisite in a work of greater amplitude and pretension. Indeed, the experienced and candid reader will testify that there are no real evidences of the fact that this work is adapted only to the wants of junior practitioners and students; on the contrary, while the style is concise, it is polished, and conveys, as a rule, what would be demanded by the most experienced practitioners; while the number and variety of subjects discussed is really astonishing. It is a most excellent volume, and will be fully prized by all who possess a copy of it. The American editor has really improved the volume by his additions to it, and deserves warm commendation for his faithful and efficient labors. We have no general works on the practice of medicine that, in many respects, are so fully up to the results of modern researches.—*Journ. of Mental and Nervous Diseases*, Jan. 1877.

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CLINICS.

CLINICAL LECTURES.

Sir William Jenner's Clinque at University College Hospital.—In the course of recent visits to the *clinique* of Sir WILLIAM JENNER, we have collected some notes of his teaching, in respect to current cases of disease under treatment.

Heart Disease in Children.—In an attack of rheumatism, the disposition to inflammation of the heart and its membranes is in direct proportion to the youth of the patient; the younger the heart, the more readily it is affected; and this is a form of malady likely to increase with years. Parents often hope "the child will grow out of it": the heart, of course, must grow; but, if the valves be imperfect, they must become more patent as the size increases; whereas, in other patients, the heart having ceased to grow, the mischief at least remains stationary. The fact is, then, that, as regards valvular diseases, children rather *grow into* their trouble than out of it. The pathology of heart disease is also largely a question of age; for instance, if I were to be affected, it would probably be of degenerative character; but if a child, or even one of you, it would almost always be rheumatic. You must, however, bear in mind its possible connection with albuminuria, with syphilis, or with congenital defect. Independently of these, it will almost surely be the result of rheumatism, though the attack may have been

Published monthly by HENRY C. LEA, Nos. 706 & 708 Sansom Street, Philadelphia, *for One Dollar a year ; also, furnished* GRATUITOUSLY *to all subscribers of the "American Journal of the Medical Sciences," who remit the Annual Subscription, Five Dollars, in advance, in which case both periodicals are sent by mail free of postage.*

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so slight as to have been forgotten. If you find evidence of cardiac disease, and if you do not get a history of ordinary causes, you must have very unequivocal evidence to prove they did not exist. The more improbable any point is, naturally the stronger must be the evidence of it. If Dr. Slade tell me he gets spirit-writing, his proofs ought to be above suspicion. If endocarditis in a child be the *only* symptom present, still it must be taken as strong evidence of rheumatism. I remember a boy who came with no definite complaint; but we found a loud friction sound over the heart; a week afterwards, he got swelling of the joints and other evidence of rheumatism. Another case was more striking, and occurred in the young child of a medical friend. It was found late at night suddenly suffering from great dyspnœa; I was sent for hurriedly in the absence of the father, and found a loud mitral *bruit*, which had never been suspected before. Half an hour afterwards the father returned, to find dead the child that he had left apparently well. It was two years old, and, after much consideration, they remembered that, about twelve months before, its limbs had seemed very tender, and it was uneasy in walking; but these symptoms had passed away and been forgotten; no doubt, they indicated the commencement of the attack. The least sign, then, of such trouble in children should be most carefully watched; and remember the great tendency of the malady to recur, so that, after one attack, care should be constant. *Chorea* has been considered a rheumatic inflammation of the spinal meninges. The rheumatism may be a coincidence, but it is certainly a common one. If there be active endocarditis at the time, I consider it certainly rheumatic; but, in estimating the importance of a *bruit*, inquire whether it varies, is absent from certain beats, or whether it be constant; for if the former, it will often be dynamic from irregular action of the papillary muscles. I remember a child with chorea and a *bruit* of organic character, but no other evident rheumatism. In a week, however, he got urticaria, and later a marked attack of acute rheumatism. Another baby with chorea was intensely fretful, and I found the explanation in signs of acute pericarditis, which, indeed, proved fatal soon afterwards.

Ascites is never directly produced by heart disease, but only after organic disease of liver has occurred.

Rachitis.—Sir William Jenner observed that a very large mortality is due to this malady, though it has no place in the registrar's returns. If a child be brought to you with (1) sweating of the head and upper part of the body; (2) tenderness of limbs; (3) strong desire to lie cool, that is, to throw off its bedclothes; (4) or fetid stools; let the child be stripped, and observe its position and the state of its bones. Rickets is popularly associated only with crooked legs; but it really occurs before the deformity, and the latter is the result of mechanical pressure on softened bones. Observe this child bending forward as it sits, and resting on its hands; note the *clavicles* bent at almost an acute angle in their middle. This is from transmitted pressure. Its legs are not bent, for it is never on them; the thighs are sometimes bent from the position of sitting, and sometimes the humerus just below the insertion of the deltoid, from the weight of the arm when raised by that muscle. The back is curved, and this is mistaken sometimes for angular curvature; but observe, you can straighten it out with your hand. Next, see the ribs, and note a groove just external to their cartilages, which feel like "beads." At each inspiration, the atmosphere presses most on the weakest part, *i. e.*, the growing part, near the cartilage, and the groove deepens. The action may be imitated with a piece of lung in a glass jar with artificial diaphragm; depress this, and air enters the lung; now insert in the side of the jar a piece of India-rubber, and see how that also is pressed in by the air at the same time. The child is almost in the condition of a frog as to breathing, the inspiratory power is so feeble. The ribs are so soft, and assist so little, that the whole occupation seems to be to breathe. Such children are very liable to catarrh and bronchitis, and a plug of mucus in a bronchial tube may cause death. Observe the shape of the chest, of small diameter laterally, but deep from before backwards.

The *bones* are enlarged at their ends, as at the wrist and ankles, or at any part where ossification is going on; thus the parietal bones are thickened along their suture. When the bones do harden, they become harder even than normal, and their development is generally arrested—the scapula especially is small and thick—and, if the affection be severe, the child becomes a dwarf. The head, like the thorax, is narrow across, long from before backwards—nearly an opposite shape to that of hydrocephalus. A prominent forehead, or what may be called a "lofty brow," generally means rachitis. We had a classical instance here at one time in the porter at the dissecting-room, whose cranium came afterwards into our museum; and a lady phrenologist, examining our selection, singled it out with "*This is the grandest.*" The fontanelle is often unclosed and depressed; in hydrocephalus, it is raised. Dentition is retarded; this child, nineteen months old, has only two teeth. Recognizing rickets, you will not feel bound to lance gums in expectation. With regard to the general tenderness of surface, it leads to the child keeping as quiet as possible. Whilst a healthy baby will occupy itself in putting its toes in its mouth, etc.: the rickety child also will, as a rule, be "good," contrasting strongly with the tuberculous, who will be irritable.

The fetid stools are like putrid meat. The belly is large; but, remember, all children have large bellies. This is well known to painters who paint from nature. You will observe either they paint it so, or they arrange the position so as to hide it from view. The reasons that make it large are particularly active in the rickety; the parietes are thin, the muscles weak, digestion impaired, the chest-wall ineffective, the diaphragm has to do more, it descends lower, and the liver and viscera are pushed forward.

As to the *cause of rickets*, it is clearly traceable to mal-hygiene. Very rarely is the first child rickety; but, when one is so, mostly the subsequent ones also. I speak of the lower ranks. Say a coachman marries a servant. They have at first room enough and comfort enough, and the first child is healthy; others come; the mother nurses long; the condition of her blood is impaired, the air is less pure. If work be not good, the food is less; and the result is seen in the children. Amongst the wealthier classes, you may get an occasional rickety child in a family, traceable often to oversuckling or temporary troubles.

Treatment.—In the infant, if the mother be ill, provide a nurse; in all attend carefully to the feeding. You must see it yourself. It is your instrument of cure. What should we say of a surgeon who did not look at his instrument before using it? Milk is good, but do not press too much of it. You must see the stools, and if undigested curd be passed, you must lessen the milk or thin it; a little pepsine will help. Softened bread or barley may be given, not corn flour as a rule. Minced-meat is often advised, but is not good; if any meat be given, let it be well pounded, and pressed through a sieve. Beef-tea, well made, is better. Of remedies, cod-oil is so successful that we have been cautioned how we give it, lest "it should set the bones too quickly and induce deformity;" but this is nonsense. It gives admirable results.

Hydatid Cyst; Diagnosis.—A man presented a rounded projection at the ensiform cartilage and lower ribs of right side; no pain, no jaundice, feels well: *the swelling is in the liver, for you can feel its lower margin rising and falling with respiration*, and the swelling is above the lower margin. Note that the diaphragm is not so damaged as to be inactive, whilst in malignant and inflammatory disease it commonly is so. The liver is probably unchanged in texture; the growth has been gradual, and revealed only by the present swelling; the upper surface is free; there is obscure fluctuation, but no "hydatid fremitus;" the absence of this is not stronly negative, though its presence would be positive.

Addison's Disease.—The points that were specially described by Addison were—1. The brown coloration; 2. The anæmia; and 3. The weakness. Observe that exposed parts are most coloured, as the knuckles; also blistered surfaces, parts that are naturally pigmented, and parts that are pressed upon: the nipples and umbilicus, the margins of eyes, roots of eyelashes, the buttocks, and hips. Often the suprarenal capsules are diseased, but I have seen a case where they were not diseased, but branches of the sympathetic ganglia passed through the lymphatic glands. It is possibly the sympathetic which is at fault.

Enteric Fever; Beef-tea v. *Milk; Hemorrhage.*—"In a case, now at the fourteenth day, there is looseness of the bowels. On examining the stool, I find a separate undigested curd of milk. This curd has acted as an irritant and induced the diarrhœa, therefore you must thin the milk, and replace it more or less by beef-tea. It has been too much the fashion to give much milk without due regard to its digestion. As remedies you may give some starch with bismuth in enema." At the next visit, some hemorrhage (of which the patient was kept in ignorance) was reported by the nurse. On inspection it was found to be about half a pint of dark fluid blood. "Now, the most important point is, that this patient do not sit up for any purpose. A case which occurred during my student days impressed me very much. He had had hemorrhage like this, but did not seem very bad; his pulse was 84; his mind clear; he was allowed to rise to the night-stool; the hemorrhage recurred, and ended fatally in a few minutes. A mesenteric artery had been opened. You must then, by position, take off the weight of the blood-column. Omit milk altogether, the curd might irritate; give beef-tea and arrowroot; a little softened bread; a little brandy, two drachms every three or four hours, to improve the nerve-tone; give him three grains of acetate of lead with acetic acid every four hours, and an opiate enema night and morning. Observe there is no great distension of abdomen, and there is no tremor. I conclude the ulceration is not deep. *When tremor is disproportionate to other nerve-symptoms, it indicates more depth of ulceration.*" The patient did well.—*Brit. Med. Journ.*, Oct. 28, 1876.

Unusual Form of Progressive Locomotor Ataxy, with Anæsthesia of the Portio Mollis. By JULIUS ALTHAUS, M.D., Phys. to Hospital for Epilepsy and Paralysis.

The following case is interesting, from the peculiarly sudden manner in which the symptoms of ataxy became developed; from the circumstance that a pair of cerebral nerves, which but rarely suffer in this disease, viz., the portio mollis of the seventh pair, were in a state of complete anæsthesia; and finally from the favourable results of treatment, under apparently unpromising conditions:—

H. W., æt. 32, married, and father of three children, a butcher by trade, was admitted into the Hospital for Epilepsy and Paralysis, Regent's Park, under the care of Dr. ALTHAUS on January 10th, 1876. The examination of the patient was unusually troublesome, as owing to his being completely deaf, all questions had to be written down on a slate. It appeared that the ataxy dated from May, 1875, but that for some time previous to that the patient had been out of health, and suffered from persistent sickness, and total loss of appetite. In May, 1875, he suddenly began to squint and see things double, but whether this was owing to an affection of the third, fourth, or sixth nerve it is now impossible to determine. The strabismus and diplopia only lasted for a few days; but about the same time the patient began to suffer from distressing vertigo, and a roaring noise in the head. It appeared sometimes like thunder, or as if there were explosions of gun-powder in his head, or bells ringing, and all kinds of other strange noises. This lasted for about a month, during which time the hearing of the patient became gradually diminished; and at last he became completely deaf. He now noticed that he did not walk so well as before, more particularly in the dark; and the peculiar sensation as of walking on cotton or bladders presented itself. Pains of a character peculiar to ataxy began to shoot through the lower extremities, more especially in the night, and on exposure to wet or cold. The ataxy rapidly increased, in spite of medical treatment, so that he became helpless in a short time; and when he entered the hospital he had already reached the third stage of the disease, in which not only the co-ordination of movements, but also muscular power, suffers.

There was no hereditary tendency to nervous affections, such as paralysis, insanity, or neuralgia. The patient had always been a steady, hard-working man, not given either to alcoholic or venereal excesses. He had never had syphilis nor gonorrhœa. He does not smoke. He had, however, in his trade as a butcher, been obliged to go about a great deal in all kinds of weather, and in the small hours of the morning, and had lately had a good deal of anxiety about money matters. No symptoms indicating cerebral mischief were present; speech, intellect, and memory being quite normal. All the cerebral nerves were in functional activity, with the exception only of the auditory nerves. The external and middle ear being quite healthy, the deafness had to be ascribed to neuritis, and subsequent atrophy of the auditory nerves in the semicircular canals. This view was also borne out by the symptoms which had ushered in the disease. There was now constant tinnitus aurium. The physiognomical expression of the patient was peculiar; his features appeared in perfect repose and unimpressionable, except when a question in writing was put to him. In anæsthesia of the fifth pair of cerebral nerves the expression becomes truly statuesque; but in the present case there was perfect cutaneous sensibility all over the face, and the want of physiognomical play was evidently owing to the utter absence of hearing, and comparative indifference of the patient to what went on around him. The pupils were normal, there was no strabismus or ptosis, no deviation of the tongue or uvula, and no difficulty in masticating or swallowing.

The spine was not tender to pressure or percussion, nor was there spontaneous pain in it; and the pain in the limbs was less marked than some time ago. There was incomplete cutaneous anæsthesia from the waist downwards to the feet, and also incomplete muscular anæsthesia. Tickling the soles produced no reflex movements; and pinching the gastrocnemius and rectus femoris produced hardly any sensation. The muscles were flabby and somewhat wasted, but responded freely to the continuous and faradic currents. The patient could not walk at all, except when supported by two other people, and even then he had the greatest difficulty in stepping out, the peculiar jactitating gait of the atactic being plainly discernible. The helplessness was so great that it verged on paralysis. He could only stand when supported by two sticks, and when he closed his eyes he reeled like a drunken man. Yet he could when lying down or sitting on a chair move his legs and feet more freely than a patient can do who is suffering from myelitis or a high degree of spinal congestion.

The sexual power had been gradually lost during the last sixth months, and the bladder and rectum suffered in the usual manner. There was great difficulty in passing water, the patient having to strain for fifteen or twenty minutes before he succeeded in voiding a few ounces of urine. Occasionally there was incontinence. The urine was habitually neutral, and contained a large excess of urea and phosphates, but no albumen or sugar. The bowels were confined, and when purgatives were administered they acted so rapidly that the feces were voided before the patient had time to reach the commode.

The upper extremities were unaffected, with the exception of a slight feeling of numbness in the third and little fingers of the left hand. The heart and lungs were healthy. The appetite, however, was very bad, and digestion much impaired; the tongue furred. There was tenderness in the right hypochondrium, and increased dulness in the region of the liver. The patient was considerably emaciated, and had a sallow and dyspeptic complexion. He was ordered argenti nitratis gr. 1–6th, bis die, in pill; sodæ hypophosphitis gr. x. in a little infusion, likewise twice daily; and gr. 1–6th of res. podophyll. at bedtime.

March 20th. The nitrate of silver has been gradually increased to half a grain twice daily, but has produced no favourable influence upon the ataxy. There is, on the contrary, increased helplessness, and more frequently than before inconvenience of the bladder and bowels.

28*th.* The patient was suddenly taken with vertigo and insensibility, which lasted for about three hours; there were no convulsions. The complexion became of a deeper yellow; the tongue had a dirty brownish coat; there was total loss of appetite, and the excretions came away. Right hypochondrium very tender, pulse 120, temperature 99.5°. He was given five grains of Plummer's pill, to be followed by five grains of carbonate of ammonia and fifteen grains of bromide of potassium three times daily in mixture.

29*th.* Patient still drowsy. Morning temperature 100.2°, pulse 110; evening 101.5°, pulse 120. General condition much the same.

30*th.* Morning temperature 99.6°, evening 101.4°. Rather less comatose.

31*st.* There is decided improvement today; the expression brighter, the complexion less dark, and the temperature has fallen to 99.2.°

April 1*st.* There is more appetite; patient has retained feces for the first time. Temperature 99.2°, pulse 90.

10*th.* General condition good; but ataxy and deafness exactly the same. The liquid extract of ergot was now given in half-drachm doses thrice daily.

From this time forward the patient made an excellent recovery. He is now (Feb. 26th, 1877) able to walk briskly without a stick; feels pinching the skin and muscles of the lower extremities well; has perfect control over bladder and rectum; can stand firmly with his eyes closed, and has no difficulty in going with his legs and feet through the various test movements which are usually employed in such cases. The ergot was gradually pushed up to a drachm three times daily, and throughout the course was very well borne. It was only discontinued once during last summer, when the patient complained of general *malaise*, with loss of appetite and a feeble pulse. The citrate of iron and quinine was then substituted for the ergot, with good results as far as those symptoms were concerned; but it was discontinued after a fortnight, as the ataxy did not improve, and the administration of ergot was resumed in forty minim doses. There have never been at any time symptoms of so-called ergotism, which, at least in that form which is generally described in the text-books, Dr. Althaus looks upon as a myth.

The only symptoms of illness which still persist are deafness and tinnitus aurium. Mr. Dalby kindly examined the patient's ears very carefully some weeks ago, and confirmed the diagnosis of anæsthesia of the portio mollis in the semicircular canals, at the same time giving it as his opinion that the case was quite hopeless, as far as any recovery of hearing was concerned. Dr. Althaus has, however, to give the patient a last chance, ordered the use of the continuous galvanic current to both ears in the following manner: The external meatus is filled with warm water, and the negative electrode, in the form of fine metallic probe, dipped into the water, while the anode, armed with a moistened sponge, is applied to the hand of the opposite side. The current is now alternately made and broken, the result being that each time, on making the current, the patient hears a distinct "blowing" sound, which has quite recently become accompanied with a "ringing" sound. To all external sounds the patient, however, continues as yet quite insensible.

Remarks.—Acoustic neuritis is of very rare occurrence as a symptom of ataxy. Amongst 220 published cases it is only mentioned in nine that there was a diminution or loss of hearing, and in these it only came on in the later stages of the disease, but not in the commencement of it, as in the present case. On the other hand, affections of the optic and of the motor nerves of the eye are most common in the early period of ataxy. It is, perhaps, a matter of surprise that the portio mollis should be so rarely implicated, since ataxy is essentially a disorder of equilibration; and it is now well understood that the auditory nerve is not simply a nerve of special sense, but has a distinct relation to certain centres which regulate the equilibrium of the body. The connection is effected by afferent fibres which proceed from the portio mollis to the crura cerebelli, and it accounts readily for the symptom of vertigo which accompanies acoustic neuritis. It resembles optic neuritis, which is not uncommon in the commencement of ataxy,.by being a more permanent affection, while the corresponding disorders of the motor and sentient nerves—such as strabismus, diplopia, ptosis, nystagmus, facial anæsthesia, etc. —are generally recovered from.

That there should be tinnitus aurium, after complete deafness has existed for a considerable time, is apparently strange; but we have analogous facts with regard to the motor and sentient nerves. Atrophy of the posterior roots, or of the sentient nerves themselves, leads to the worst forms of neuralgia, while atrophy of the motor nerves causes certain forms of spasm.

Another practically important point in this case was the disorder of the digestive organs, which had preceded the development of the complaint. This is a matter on which no stress has been laid in the systematic descriptions of ataxy, but which Dr. Althaus has seen sufficiently often to merit attention. Loss of appetite and severe vomiting occur sometimes previous to the outbreak of the disease of the cord, and in other cases accompany it throughout its course, and appear generally to accelerate its progress in a marked manner. In these cases there is generally a great excess of lithates in the urine, deserving the name of lithæmia. The liver seems to be the organ which is chiefly affected, and should be carefully examined and treated. By severe or repeated attacks of this form of dyspepsia the system is very much enfeebled, and the patient then falls a prey to ataxy, provided the conditions favourable to its development—viz., over-exertion in wet and cold, accompanied by mental anxiety, be present.

A further feature of interest was the exceedingly rapid progress of the disease. The patient was in a few months reduced to complete helplessness, while in the majority of cases from five to ten years elapse before such a condition is reached. The prognosis in ataxy is generally bad in cases which progress rapidly, and which are accompanied with affections of the cerebral nerves, more particularly of the nerves of the special senses. It was, therefore, all the more satisfactory that in the present case, where both these unfavourable conditions existed, the faculty of co-ordination, and the functional energy of the bladder and rectum, should have been restored by treatment.—*Medical Examiner*, March 22, 1877.

HOSPITAL NOTES AND GLEANINGS.

Persistent Gonorrhœa of the Duct of the Left Gland of Duverney.—G. F——, aged twenty-three, single, was admitted into the Edinburgh Royal Infirmary, under the care of Dr. Matthews Duncan. She said that she was exposed to the risk of venereal infection five years before, and that ever since this she has had a vaginal discharge. For a month past she had suffered greatly from frequency and painfulness of micturition. The following notes were taken at the time of admission.

She is a strong, healthy woman; menstruation regular. The urine is found to contain pus, which was afterwards found to be vaginal. There is a neuromatous polypoid caruncle at the orifice of the urethra. The vulva presents some spots of superficial inflammation. The hymen has been lacerated; its free edge is at several points acutely inflamed. About the lower part of the vagina there is some purulent discharge, and on the same part, near the hymen, are some red spots denuded of epithelium. There are swelling and redness of the cervix uteri, with a ring of ulceration around the os. The cavity of the cervix is filled with viscid muco-pus. The bladder is found, by sounding, to be capacious, soft, and not tender. The urethral caruncle was excised.

The catarrh of the cervix was successfully treated by a single application of a stick of zinc-alum about an inch long, managed in the usual way. In addition, a very weak solution of the sulphates of zinc and alum was used daily as a vaginal lotion.

After three weeks, the irritability of

the bladder having disappeared on the removal of the urethral caruncle, there still remained a purulent discharge, which accumulated about the orifice of the vagina; and in the same region there was a degree of redness of the mucous membrane.

On careful examination, it was found that the left duct of Duverney's gland was full of pus, several drops being easily squeezed out of it. This was treated by injecting on two separate occasions a solution of nitrate of silver, twenty grains to an ounce, by means of a syringe for the lachrymal duct.

Soon afterwards the patient was dismissed cured.

Remarks.—In this case, the irritability of bladder was naturally, before ocular examination of the urethra, supposed to be a part of the results of the old gonorrhœa. The caruncle of the urethra was also a natural explanation of it, and its removal by scissors demonstrated that the irritability owned no other cause.

The inflammation of the vulva and lower part of the vagina was in like manner kept up and rendered intractable by the persistent discharge of pus from the duct of Duverney's gland, the inflammation of which was not subjected to treatment. This gonorrhœa was not earlier discovered because the glands of Duverney were not enlarged or inflamed, as they often are in such cases. There was no tenderness or swelling to call attention to the part. The removal of the inflammation of this duct was necessary to complete the cure of the case.—*Lancet,* March 3, 1877.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

American Medical Association. — The annual meeting of the American Medical Association will be held in Chicago on Tuesday, June 5th, at 11 o'clock, under the presidency of Dr. Henry I. Bowditch, of Boston.

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The Association and the Pharmacopœia. —At the last meeting of the Association resolutions were introduced by Dr. Squibb, of New York, relating to the publication of a pharmacopœia by that body, and were made the special order for the second day of the ensuing meeting. Coming from such a distinguished source, and referring to questions of the deepest moment to the profession at large, it is important that the project should receive careful and thoughtful consideration from every member of the Association. Each point involved, whether direct or remote, should be maturely weighed, and there are many points which are not apparent at first sight, but which yet may in time be found to be of no little importance.

To properly appreciate the questions raised, it is important to remember that the existing "Pharmacopœia of the United States" is copyrighted, and is published by authority of the "National Convention for revising the Pharmacopœia," which is composed of delegates from all incorporated State medical societies, incorporated medical colleges, incorporated colleges of physicians and surgeons, and incorporated colleges of pharmacy throughout the United States. It will be observed that the American Medical Association has no representation in this convention.

Dr. Squibb's resolutions for the assumption by the Association of the ownership, control, and management of the United States Pharmacopœia, to be offered at the ensuing meeting, are as follows:—

"*Whereas,* The American Medical Association, as being the only organized body which represents the medical profession of the United States of America, may fairly claim the right to control all the general rights and interests of the profession not controlled by statute law; and,

"*Whereas,* 'The Pharmacopœia of the United States of America' is among the most important of such general rights and interests, and has not heretofore been under the direct control of this Association, but has been managed by a representative body similar to this, and for the most part embraced in this body, though representing only a small part of the medical profession; and, "*Whereas*, This smaller body, known as the 'National Convention for Revising the Pharmacopœia,' has given evidence that its plan of organization, though well adapted to the wants of the profession in the past, is insufficient for the growing necessities of the present and the future materia medica; therefore, be it

"*Resolved*, First, That the American Medical Association does, now and hereby, assume the ownership of 'The Pharmacopœia of the United States of America,' and, as the superior representative body of the organized medical profession, does, now and hereby, relieve 'The National Convention for Revising the Pharmacopœia' from any further acts of ownership, control, or management of the Pharmacopœia.

"*Resolved*, Second, That the medical societies and colleges, which, in 1870, sent delegates to both this Association and the National Convention, do, through their delegates now present, relieve the officers of the National Convention from the duty of issuing a call for a convention in 1880, as provided for by the last convention; and that any society or college which does not desire to relieve the officers of the convention of 1870 from this duty, and does not desire that these conventions should now cease, be now heard through its delegates in this body; and that a failure to oppose this resolution at this time shall be construed to signify acquiescence in its object.

"*Resolved*, Third, That the President of this Association notify the President of the National Convention, or his successor, of this action taken by this Association, and request him not to issue a call for a 'General Convention, to be held in Washington, on the first Wednesday in May, 1880,' as provided for by the General Convention of 1870, and ask him to make his decision in the matter known to the president of this Association. But, if the president of the National Convention, or his successor in office, should fail to reply, such failure shall be construed to mean acquiescence in this action.

"*Resolved*, Fourth, That 'The Pharmacopœia of the United States of America' be hereafter issued only by the authority of this Association; and that it be the only standard for the materia medica recognized by the medical profession of the United States of America."

Dr. Squibb's plan is for the Association to take possession of the Pharmacopœia of the National Convention, and then to reconstruct it according to the views he expressed at the preceding meeting. The first part of this project he proposes to accomplish by the adoption of the above resolutions, of which a recent writer ("*The United States Pharmacopœia and the American Medical Association*") truly says, "any assemblage has the right to pass a resolution like the first of these, assuming possession of anything; but such resolutions on paper lead to derision, and when put into practice to civil or criminal litigation." The impotency of the other resolutions is equally apparent.

Dr. Squibb bases the justifiableness of his project on the ground that the constituency of the Pharmacopœial Convention is, "for the most part, embraced" in that of the Association. Is this so? The Association, as is well known, is composed of delegates from State and county medical societies, whether incorporated or not, whereas the Pharmacopœial Convention is composed of delegates from medical colleges, colleges of pharmacy, incorporated colleges of physicians and surgeons, and *incorporated* State medical societies. The roll of the last Pharmacopœial Convention shows that it was composed of 73 delegates from 32 bodies, of which about four-fifths are not entitled to representation in the American Medical Association; or, to be accurate, of which 25 bodies sending 60 delegates are not entitled to representation in the Association, against 7 societies sending 13 delegates so entitled. As the delegates from *incorporated* State medical societies, of which there are but few, form but a small portion of the whole number of delegates comprising the Association, it requires but a moment's thought to see that these resolutions, although they might be unanimously opposed by the delegations from every society represented in the Pharmacopœial Convention, yet might be adopted by an overwhelming majority in the Association.

As if to give his project an appearance

of fairness, Dr. Squibb's second resolution declares that any society or *college* opposing this project "be now heard through its *delegates in this body*," yet, as the colleges and many of the societies are neither entitled nor invited to send delegates, this call upon them is wholly delusive, while at the same time its recognition of their right to be heard is an admission fatal to the whole project. Then, to crown all, we have the clause which is intended to give to the seizure of the Pharmacopœia the semblance of legal acquiescence on the part of its owners; "a failure to oppose this resolution at this time shall be construed to signify acquiescence in its object." We cannot believe that the Association will be guilty of so transparent a subterfuge as this would be, assuming the presence of the absent, and then assuming their consent because they fail to speak.

The voice of the Association, therefore, cannot by any strain of reasoning be held to be that of the Pharmacopœial Convention. But even if the constituency were the same, it would require no laboured argument to show that each has been endowed with authority which can only be altered or abrogated by the original power which gave it.

If Dr. Squibb considers it desirable that the Pharmacopœia should pass into the hands of the Association, the proper plan for him to pursue is to advocate such a course in the National Convention for the revision of the Pharmacopœia, and there ask for the passage of resolutions looking to the dissolution of the convention and the assignment of its property to the American Medical Association; but for the latter to attempt to seize the Pharmacopœia in the proposed violent manner is neither admissible in law nor justifiable in morals.

As regards Dr. Squibb's ideal pharmacopœia he tells us that it includes a dispensatory, and his plan comprehends, in addition to the services of the Committee of Revision, the permanent employment of "one or two editors and other experts" in its preparation, and the publication of a revised edition every five years and of a fasciculus every year. The expenses, and they must necessarily be very heavy, are to be met by the proceeds of the copyright, the value of which, in consideration of the certainty of competition from the maintenance of the existing Pharmacopœia and of the dispensatories published by private enterprise, is sure to be very seriously impaired. If this plan be carried out, Dr. Bartholow's prophecy (*Clinic*, March 24, 1877), that "the members of the Association must be taxed annually to maintain the expensive luxury proposed by Dr. Squibb," will surely be fulfilled.

This suggests another question of considerable moment, which we do not remember to have seen adverted to. Hitherto, the Pharmacopœia indeed has been copyrighted, but this has been done to protect its scientific interests and not the pecuniary advantage of those connected with it, who have freely given their service without pay, and whose very moderate expenditures have been readily met by its sale at a low price. It has been free to every one to make such professional use of as seemed fitting, and the profession has thus through journals, and treatises, and formularies had the benefit of the labours of the Convention and Committee of Revision without fee and without price. Pharmacology and therapeutics have profited by this, and the progress of these sciences has been encouraged and facilitated. To prohibit the freest use of the Pharmacopœia would seem to be unprofessional and illiberal.

All this must of necessity be changed if Dr. Squibb's plan be adopted of a permanent board with experts permanently engaged, the heavy expense of whose labours is to be defrayed by the sale of an enlarged pharmacopœia partaking of the nature of a dispensatory. To accomplish this while endeavouring to avoid the humiliation of soliciting subscriptions or of exacting a tax from members of the Association to meet the outlay, this new Pharmacopœia must be copyrighted in fact as well as in name, and its copyright would probably come to be defended against all intruders whose use of its materials might tend to diminish the profitableness of the speculation. We need hardly call attention to the repressive influence which an authorized monopoly such as this would exercise upon the progress of therapeutic science in this country, or to the degrading position in which it would place the representatives of a liberal profession, whose functions of promoting science and relieving the sufferings of humanity would be diversified by the awkward task of ejecting all intruders from the sacred field entrusted to their guardianship.

No one can doubt that the motives of Dr. Squibb are wholly disinterested, and that he does not in any way contemplate such a result as this from his favourite project. But if the Association enters into business it must infallibly come under the operation of business principles, and these in time could hardly help bringing about the condition which we have described, when the pharmacopœial commission would feel that its duties lay as much in protecting its monopoly as in testing a new drug or a new pharmaceutical process.

In favour of the existing plan of revision it may be said that the basis of organization of the National Convention for the revision of the Pharmacopœia is *thoroughly representative and national* in character. Moreover, this body is composed of experts especially selected on account of their peculiar qualifications for the work by those bodies which are themselves most likely to be abreast of the science of the day (and most of which are *not* represented in the American Medical Association), thus affording the best talent to be found in the country for the task.

The next session of the Pharmacopœial Convention we are told will certainly be called, and from the action of some of the bodies represented in it, and the sentiments which we are informed exist in others, we have no reason to doubt that it will meet and continue the work of revision as heretofore, regardless of any action the Association may take on the resolutions of Dr. Squibb. Should, therefore, such counsels prevail as to lead the Association to form another and rival pharmacopœia, it could only be considered as a great misfortune. The existence of a double standard, each claiming to be authoritative, would certainly lead to unutterable confusion, with the worse probability of mistakes, sometimes fatal, constantly arising from differences in strength of "officinal" preparations made according to the formula prescribed in one or the other work, just as was continually happening in Great Britain during the existence of the London, Edinburgh, and Dublin Pharmacopœias.

A careful examination of the arguments advanced in favour of Dr. Squibb's ideal pharmacopœia leads to the conviction that whatever its advantages may be they can be certainly equally well, and probably much better, secured under the existing machinery for the revision of the Pharmacopœia, and that there is, therefore, no valid reason, even if the proposed way were justifiable, why such important interests as are involved should be jeopardized by the Pharmacopœia being transferred to new machinery and untried hands.

If it is the judgment of the Association that the Pharmacopœial Convention has not a constituency wide enough, and that it does not fully represent the profession of the country, and if both the American Medical and the American Pharmaceutical Association would desire representation in the next meeting of the Convention, there is probably little doubt that on signifying this desire steps would be taken by the executive officers of the Convention to secure the co-operation of those bodies in the revision.

American Gynæcological Society.—The second annual meeting of this society will be held in Boston on May 30. The annual address will be read by the President, Dr. Fordyce Barker, of New York.

Kentucky State Medical Society.—The annual meeting of this Society was held at Louisville, on the 3d of April. Dr. R. W. Gaines, of Hopkinsville, President, in the chair. The following officers were elected for the ensuing year. President-Dr. L. P. Yandell, Jr., of Louisville; Vice Presidents, Drs. J. Dismukes, of Mayfield, and W. B. Rodman, of Frankfort. Frankfort was chosen as the place of meeting in 1878.

Dr. L. S. McMurtry, of Danville, reported that the M'Dowell Monument

Fund amounted to $434. Subscriptions were given on the spot, increasing the fund to $1054.

Dr. Baker, of Shelbyville, offered the following resolutions, which were adopted unanimously:—

Resolved, That this Society is in full accord with the American Medical College convention, seeking to elevate the standard of medical education in this country.

Resolved, That summer schools, which enable students to graduate after from eight to nine months' study, are exerting an evil influence upon the profession.

Resolved, That a winter and summer course by the same school, and graduation at the end of each, tends to deteriorate the standing of the medical profession.

Resignations in the Philadelphia Medical Schools.—Dr. Francis G. Smith has resigned the professorship of the Institutes of Medicine in the University of Pennsylvania, and Dr. B. Howard Rand that of chemistry in the Jefferson Medical College. We understand that the vacancies thus created will not be filled immediately, so that time may be afforded to gentlemen who desire to become candidates, to make known their qualifications.

Charleston Medical Journal and Review.—The editors of the *Charleston Medical Journal* announce its suspension, with an expression of hope, in which we cordially concur, of its renewal in more prosperous times.

A New Dispensatory.—We are pleased to observe the announcement that Dr. Stillé and Professor Maisch have for some years been engaged in the preparation of a new Dispensatory. From the eminent fitness of these gentlemen there can be no doubt that the work will be of value to both the medical and pharmaceutical professions. Our friends of the "Cincinnati Lancet and Observer" are in error in supposing that the "National Dispensatory," on which Professors Stillé and Maisch are engaged, has any connection with the project of Dr. Squibb.

FOREIGN INTELLIGENCE.

Hysterical Aphonia.—In the *Progrès Medical*, 1876, No. 9, MM. Liouville and Deboue describe an interesting case of cure of hysterical aphonia. A girl, eighteen years of age, in consequence of hysterical paralysis of the vocal cords, became at length quite dumb. The authors, by firm and painful pressure in the region of the ovaries, produced a well-marked hysterical paroxysm. During the attack, the patient, for the first time after a long period, began to scream and to speak with a low voice. Repetition of the procedure brought back the voice entirely, but the disordered condition of the nervous system remained.—*British Med. Journal*, Nov. 11, 1876.

Exercise in Diabetes—Dr. Kulz, of Marburg, has observed eight cases of diabetes mellitus in which active exercise was of decided value: but such exercise must consist in vigorous movement in the open air, simple in-door gymnastics are scarcely of the slightest use. In his experience, the best results are obtained by mountain climbing, and provided the patients are fond of such exercise, and can support the necessary exertion, he strongly recommends this treatment in lieu of drugs, provided that careful preliminary experiments have shown that exercise diminishes the excretion of sugar in the particular cases.—*Med. Times and Gaz.*, March 10, 1877.

Copper in Preserved Vegetables.—M. Pasteur, who had been charged with the duty of making a report on the presence of copper in preserved vegetables, especially young peas, communicated the following particulars to the Academy of Sciences of Paris.

Fourteen tin cases of preserved peas were purchased from various grocers in the districts of the Madeleine, etc. Copper was detected in ten out of the fourteen cases, sometimes amounting to $\frac{1}{10000}$th part of the total weight of the contents, not counting the fluid portion. The copper usually became deposited on the surface of the pea, beneath its external cortical layer. Mere inspection of the vegetable, according to M. Pasteur, sufficed to reveal the presence of copper. If the pea had even in a slight degree the green tint of the natural vegetable we might be certain that copper had been employed, for peas preserved without the addition of a copper salt were of a yellowish colour without any tinge of green. In the present state of our knowledge, copper was the only substance by means of which the required tint could be given, and hence its frequent employment. Even admitting that experimental physiology proved that copper and its salts were less poisonous than we had been accustomed to consider them, the guardian of public health should not on that account tolerate their admixture with alimentary substances. If the grocer mixed any extraneous matter with his peas he should be bound at least to mention it on the label.—*Med. Examiner*, March 15, 1877.

Death from Chloroform. — A case of death whilst under the influence of chloroform recently took place at the Derby Infirmary. Deceased, who was fifty-six years of age, was about to undergo an operation for fistula and hæmorrhoids, but before he was ready for operation, the respiration suddenly became very irregular, he struggled violently, and the pulse, which had up to this time been good, ceased. In spite of all the means resorted to for a considerable time, he showed no signs of rallying from the first. The quantity of chloroform which had been poured into the lint-holder was in all about three drachms. The *post-mortem* examination did not reveal any organic disease.—*Brit. Med. Journ.*, March 17, 1877.

Another case, the patient being a boy aged eight, is recorded in the same journal for Nov. 11, 1876.

Dr. Gustav Judell, privat-docent and chemical assistant in Professor Leube's clinic at Erlangen, was on October 26th, found dead in his bed. He had been accustomed to take chloroform at night as a remedy for sleeplessness, by which he was much troubled; and a bottle containing the anæsthetic was found near him. It appears that vomiting was excited by the chloroform, but that he was too deeply narcotized to eject the contents of the stomach, so that portions of the food remained in the œsophagus and caused death by suffocation.—*Ibid.*, Nov. 18, 1877.

Death under the Administration of Nitrous Oxide and Ether.—A death has recently taken place in London at University College Hospital during anæsthesia from nitrous oxide gas and ether, being, we believe, the first fatal case which has occurred in this country that can be attributed to this combination of anæsthetics. The patient was a woman fifty-five years of age, who was admitted to the hospital in consequence of strangulated femoral hernia. When admitted she was in a very weak and exhausted condition from constant vomiting, the hernia having been strangulated for over forty-eight hours. She was taken into the operating-theatre, and gas and ether administered by means of Clover's apparatus. In about four minutes she was well under the influence of the anæsthetic, without having exhibited any previous excitement. Taxis was then applied, when almost immediately the patient became pale and recommenced vomiting stercoraceous matter. At the same time the respirations became weak, and the pulse at the wrist imperceptible. The doors and windows of the theatre were at once thrown open, and artificial respiration was carried on for a few minutes. As no obvious benefit resulted, an enema, containing three ounces of brandy, was administered. Fumes of strong ammonia were applied to the nostrils, and ammonia injected into the right median basilic vein, but all without any good result, and the patient died within about ten minutes from the onset of the alarming symptoms. At the autopsy, stercoraceous matter was found in the trachea and right bronchus. The right side of the heart and the large veins were full of dark fluid blood. The ventricular walls were thin and flabby, and the cavities slightly dilated. The left ventricle was empty. The arch of the aorta presented numerous patches of atheroma. —*Med. Times and Gaz.*, March 17, 1877.

High Heels.—The unnatural character impressed on the gait of women by the prevalent fashion of high and narrow heels to the boots is the expression of a perversion of the natural relation of the articulations and muscular action such as cannot but result in serious and permanent damage. The character of the injury which they produce, and the symptoms by which it is expressed, are well described by Dr. ONIMUS in a recent communication to the Société de Médecine of Paris, which has been published in *L' Union Médicale.* The heel of the boots is not only high, but narrow and inclined forwards, so that the distance between the heel and the point of the foot is lessened, and the foot appears smaller than it really is. This, absurd as it is, appears to be their chief recommendation in the eyes of their wearers. The effect of the oblique position of the foot is, of course, to remove the weight of the body from its natural support—the prominence of the os calcis—and project it forwards on to the plantar arch. Hence one of the most frequent symptoms of which the wearers of these shoes complain is an acute pain in the sole of the foot, in front of and below the external malleolus. There is often considerable tenderness as well as pain, possibly in consequence of inflammation of the calcaneo-cuboid articulation. The forced depression of the anterior part of the foot determines a painful displacement of the articular surfaces. The toes, instead of the heel, first touch the ground, and the walk is clumsy and heavy, instead of light and undulating. The toes become permanently flexed and pressed together, partly in consequence of the narrowness of the front part of the boot, partly in consequence of the overaction of the flexors of the toes, due to the increased pressure on the toes, no doubt partly also to the habitual over-extension of the metatarso-phalangeal articulations, and to the irritation and contraction of the short flexor of the toes in the soles of the foot.

Other muscles are also involved in the disturbance. Those of the calf are commonly in a state of painful contraction. In consequence of the height of the heel, the body has a tendency forwards, and the soleus and gastrocnemius have to overact to correct this tendency. The peroneus longus is also affected in a very marked and uniform manner, and the pains persist longer in it than in the other muscles These muscular pains were the symptom which first drew attention to the effect of the boots. Even the muscles of the thigh may suffer, and the rectus and adductors may be the seat of some contraction. In cases of nervous temperaments the pain and irritation have produced general nervous symptoms of hysterical character. The mode of carriage of the body is influenced by the position of the feet. The centre of gravity must be kept in the line of the base of support, and hence the pelvis is tilted forwards, and anteflexion of the uterus is easily produced, and is, according to Dr. Onimus, actually present in a considerable proportion of the wearers of the "*bottines Louis Quinze*," as they are termed, in consequence of their extensive adoption in the last century. Then, as now, the fashion emanated from Paris, and then, as now, at least one stringent protest was made against the form of shoe, and its consequences on the feet of the wearer were pointed out. This was in 1781, by Petrus Camper, Professor of Medicine at LaHaye. He insisted strongly on the articular deformities almost in the same words as those employed by Dr. Onimus, but did not associate these deformities with the muscular pains.—*Lancet*, Feb. 24, 1877.

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The Hunterian Oration.—The Hunterian Oration was delivered by Sir JAMES PAGET on Tuesday afternoon, in the theatre of the Royal College of Surgeons, before a crowded audience, which included His Royal Highness the Prince of Wales, the Duke of Argyll, the Duke of Westminster, the Bishop of London, Dean Stanley, Professor Huxley, Professor Tyndall, and many of the leading members of the medical profession. After acknowledging in a few graceful words the honour which the Prince of Wales conferred on the College by his presence, Sir James Paget proceeded with his oration. He began by showing how, up to nearly the age of twenty years, John Hunter had shown no inclination for study. It was, indeed, from mere idleness and by chance that he drifted into the career in which he was to become the greatest among the great, and the most renowned among the renowned men of science. Coming, however, from a Scotch farm to London was to Hunter like being born into a new world. Gradually there arose in him an insatiable desire for knowledge, and he became possessed of a passion for collecting. He had immense power of toil, his very amusements being what other men would call work. This power enabled him to embrace a wide range of study, in which he was also assisted by his accuracy in observing facts, and the simplicity with which he accumulated them. He was cautious in adopting theories, and slow in publishing them. In short, the character of John Hunter was one of strong will, combined with singular love of truth. Other points on which the orator touched were Hunter's remarkable power of "thinking the truth," his success as the founder of scientific surgery, his great discovery of tying arteries for the cure of aneurisms. In conclusion, Sir James Paget made an effecting reference to the late Sir William Fergusson, of whom he spoke as the great practical surgeon of the day. No one would again watch those eyes which were so keen and yet so kind; those hands which were so strong and yet so sensitive—that clear precision and that rigid calmness. All these had gone, and with them those things which would endear him still more to those who knew him—his warm heart and generous nature; his social grace; but there would still remain his teaching, that the surgeon should have both hands and heart in science, and should strain only to win the best results.—*Medical Examiner*, Feb. 15, 1877.

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Antihydropin.—In Russia, the common cockroach (*Blatta orientalis*) is a favourite popular remedy for dropsy. Dr. P. Bogomolow, of St. Petersburg, has lately (*Petersburg Med. Wochenschrift*, No. 31, 1876) examined its effects in nine cases of Bright's disease, heart disease, and other affections accompanied with severe dropsy, and in all the result was the same. There was an increase in the secretion of the urine and perspiration, with rapid disappearance of œdema, and also almost complete disappearance from the urine of albumen and renal derivatives. The dose was five to ten grains of the powdered cockroaches in the twenty-four hours, but they were also administered as a tincture and as an infusion. These insects do not, like cantharides, produce any irritant action on the kidneys. Dr. Bogomolow has succeeded in extracting from them a crystalline body which he calls antihydropin, and which is their active principle.—*Med. Times and Gaz.*, April 7, 1877.

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Hypodermic Injections in Hernia.—Reporting upon three cases communicated to the Société de Chirurgie, in which strangulated inguinal hernia was easily reduced after the hypodermic injection of morphia, M. Le Dentu observes that in these cases the strangulation was recent, and although the injections certainly assisted their reduction, it is doubtful how far they would have succeeded had the strangulation been more decided and of longer duration. If the surgeon is called to the case immediately, the injection may be of use by dissipating the pain and spasm; but if some hours have elapsed, it will be always of less value than chloroform, which enables us to at once recognize whether the hernia is reducible or the operation necessary.—*Med. Times and Gaz*, April 7, 1877, from *Gaz. des Hôp.*, March 31.

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Obituary Record.—Died, suddenly, at Paris, on March 10th, aged 46, Henri Ferdinand Dolbeau, Professor of Surgical Pathology in the Paris Faculty. Although cut off in the prime of life, M. Dolbeau had already achieved distinguished reputation as a practical surgeon, and had made numerous contributions to medical literature, the most important of which is his Treatise on Perineal Lithotrity.

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None can read it without being impressed with the immense amount of common sense which is possessed by the author, as well as natural tact in interpreting the indications of treatment. His style is clear and agreeable, and he has the faculty of expounding the fundamental principles of medicine in such a way as to give them a practical application to treatment. It is, in fact, one of the most interesting, entertaining, and instructive works of its kind that we have ever read.—*Med. Record*, March 17, '77.

We heartily commend his book to the medical student as an honest and intelligent guide through the mazes of therapeutics, and assure the practitioner who has grown gray in the harness that he will derive pleasure and instruction from its perusal.—*Bost. Med. and Surg. Journ.*, March 8, 1877.

This is a very valuable book, and is well adapted for a young practitioner. — *London Lancet*, March 24, 1877.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on Strangulated Hernia. Delivered at the London Hospital. By C. F. MAUNDER, F.R.C.S., Surgeon to the Hospital.

GENTLEMEN: By a curious coincidence a case of strangulated hernia has come under my care on the last day of each of my last three in-taking weeks. Each case has some special points of interest.

Case 1.—This was an instance of strangulated inguinal hernia of the left side, reduced *en masse* by the patient himself. I operated upon him successfully; and for the second time, with an interval of ten years.

Case 2. *Femoral hernia; operation: recovery.* (Reported by Mr. Herman Tribe.)—H. MacC——, aged fifty-eight, a blacksmith, was admitted on June 20th. 1876. Ten months ago he observed a swelling in his left groin, which sometimes disappeared. On June 17th the swelling became very hard and painful, and vomiting, which has persisted, set in. On examination to-day (June 20th) a hard, globular tumour was found at the seat of femoral hernia. There was slight impulse on coughing(?). The finger could easily be passed into the inguinal canal. The patient still vomited, appeared to be very weak, and his countenance looked haggard. An operation was considered advisable, and the man at once consented.

Published monthly by HENRY C. LEA, Nos. 706 & 708 Sansom Street, Philadelphia, *for One Dollar a year; also, furnished* GRATUITOUSLY *to all subscribers of the "American Journal of the Medical Sciences," who remit the Annual Subscription, Five Dollars, in advance, in which case both periodicals are sent by mail free of postage.*

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The taxis was not employed by Mr. Maunder, but he opened the sac, which proved to be very thin, at once. A small quantity of turbid fluid escaped. The knuckle of intestine was portwine-coloured, slightly roughened with lymph. A very tight stricture was nicked, and the bowel reduced. The wound having been closed with suture, and a compress and bandage applied, the patient was returned to bed, and a grain of opium administered. Milk diet.

June 21st. He complains of slight pain in the abdomen, but of no tenderness. Temperature 101.5°; pulse 102. To take a grain of opium every six hours. 22d. Has slept well. There is a little redness and swelling about the wound. Lest decomposing fluids should be pent up, the sutures were removed, and the margins of the incision forcibly separated. A poultice to be applied. 23d. The redness about the wound has disappeared. The bowels are somewhat relaxed. The appetite is returning. Temperature 99.6°; pulse 96. 25th. The patient has suffered from diarrhœa since yesterday. To take chalk mixture. 26th. Diarrhœa has ceased. Wound suppurating freely. Replace the poultice by water-dressing. 27th. Diarrhœa came on again. July 6th. The patient is convalescent; the wound nearly healed. Zinc dressing. 14th. The patient is quite well, and awaits his truss.

Case 3. *Strangulated inguinal hernia; operation; recovery.* (Reported by Mr. Herman Tribe.)—Samuel S——, aged thirty-three, a builder, was admitted July 18th, 1876. Ten years ago, whilst at work, the patient ruptured himself. He had the rupture at once reduced by a surgeon. Since that time he has always been obliged to wear a truss; the hernia has never given him any trouble. On July 17th he neglected to wear his truss, and after he had been at work a little while the hernia came down. The patient attempted to reduce it, but could not do so. In about an hour's time he was compelled to leave work on account of vomiting. He went home to bed, was in great pain all night, and the vomiting persisted.

On examination a left inguino-scrotal tumour is found, pyriform in shape, tense, and painful. There is marked impulse on coughing (?). The tumour is not compressible. The patient vomits constantly.

Operation, eighteen hours after descent of hernia.—The patient having been placed under the influence of an anæsthetic, the taxis was applied for fifteen minutes, but failed to reduce the swelling. Herniotomy was then done. The structures were successively divided by a longitudinal incision over the neck of the swelling until the sac was reached. In this structure a most marked annular depression was both seen and felt, and proved to be the seat of stricture. This grooved portion of the sac was carefully divided by repeated scratches of the knife. Through the small button-hole thus formed omentum showed; and now, when the taxis was again applied, reduction was effected. The wound was closed in the usual way, and a dose of opium administered.

July 19th. The patient is very comfortable. 20th. Sutures removed. 21st. Bowels spontaneously moved. Slight suppuration with some redness and swelling about the wound, the edges of which Mr. Maunder now forcibly separated. Poultice to be applied. 24th. Redness and swelling have disappeared from the wound. Zinc ointment to be used. Aug. 1st. The patient is quite well, and is only waiting to have a truss.

With regard to Case 1—reduction *en masse*—I shall say nothing to-day, having taken every opportunity of drawing your attention to its importance when the man was in the hospital. It is published in *The Lancet* (July 28th, 1876), and can be referred to by those interested in the subject.

Case 2 is an example of femoral hernia in the male—a lesion of comparatively rare occurrence, though probably less rare than inguinal hernia in the female. Possibly, out of at least 120 herniotomies, some half-dozen of femoral in the male have fallen to my lot. In the present instance the tumour was typical, being globular in shape, seated at the upper and inner side of the base of Scarpa's triangle, whence it could not be displaced to the inner side of the spine of the pubis.

In both Cases 2 and 3 the notes say "there was impulse on coughing." To this I have added a query, as there really was none. It is desirable you should understand, in connection with hernia, the value, as a symptom, of the presence or absence of "impulse on coughing." Supposing the sac to contain bowel, with impulse on coughing, that would be proof that the contents of the intestine, both above and below the point of protrusion, directly communicated, and strangulation would not exist. The absence of impulse would show an absence of intercommunication, and that stricture existed. To avoid error, then, with regard to the presence or absence of impulse, the hernial tumour must be lifted away from the abdominal wall, when the *propulsion*—sometimes mistaken for impulse—communicated on coughing will be no longer felt, and the question of impulse settled. Imagine a patient with a hernia on either side and symptoms of strangulation. The absence of impulse on the one side and its existence on the other would materially help you to decide which to select for exploration. This method of examining a hernial tumour will prevent a very usual mistake. The local tumour and persistent vomiting in both instances led to the conclusion that we had a case of strangulated hernia to deal with, and reduction became the first consideration. This may be effected by the taxis, with or without the aid of the knife.

Question of taxis.—The taxis, a most valuable agent when judiciously applied, may, under some circumstances, be most injurious. You will have observed that I did not employ it in Case 2, but resorted to it for a quarter of an hour in Case 3. Observe the history of the two patients before they came under care. Case 2 had a history of strangulation extending over three days and three nights, and had only been ruptured ten months. Case 3, on the contrary, had been ruptured ten years, and his present symptoms extended over eighteen hours only. As a rule, the longer a person has been ruptured the larger becomes the ring, and the less quickly injurious will be its effect upon the structures which it constricts; and therefore, for the above reasons, I proceeded at once with herniotomy in Case 2, feeling pretty confident that I should not effect reduction, and that I ought to see the condition of the intestine before reducing it. With Case 3, whose hernial history was quite the reverse of Case 2, I fully expected to effect reduction by the taxis, but failed. The unyielding neck of the sac, exposed by the operation, explained the reason. Speaking generally of the taxis, I say: Use it thoroughly once only, aided by an anæsthetic if admissible, or other adjuvant: should it fail, resort to herniotomy. Even a successful taxis cannot but bruise, and that to a dangerous degree, an already much inflamed portion of bowel. This often efficient remedy can be aided by position, the trunk and limb of the patient being so placed as to favour relaxation of all the structures interested at the hernial aperture. As an illustration, I may mention that many years ago a male, the subject of femoral hernia, was under my care among the out-patients. When the patient was recumbent, and his lower extremity, of the side on which the hernia was, extended, moderate taxis failed to effect reduction; but with the thigh flexed, adducted, and rotated inwards, reduction was easy. Doubtless this facility was due to a relaxation of the upper cornu of the saphenous opening of the fascia lata.

Question of opening the sac.—This used to be a much-vexed question, but I fancy surgeons are pretty well agreed that in femoral hernia it is almost immaterial whether the sac be opened or not. Personally I avoid doing so, except under special circumstances, on the good general principle of non-interference. But in the case of an inguino-scrotal hernia I am most reluctant to open it. You will recollect how I pointed out to you the probable position of the stricture in the case of No. 3, and which coincided with the external ring. This I nicked and enlarged, but even then could not effect reduction, and it was only when I reached the sac and showed to you a deep sulcus in this that the immediate obstacle was evident. Mr. Tribe has described the care and caution which I used, and the very small wound which I made in the serous membrane, with a view to enlarge the constricting neck just enough to admit of reduction. I allowed nothing—not even the point of a director, much less my finger—to enter the sac, so as to avoid every risk of peritonitis.

The after-treatment of the wound requires some consideration. I generally close it with the hope of getting primary union, and now and then this has resulted both in hospital and in private practice. But the surgeon must be on his guard, the parts being concealed by compress and bandage, lest decomposing fluids become pent up and give rise to both local and constitutional disturbance. Should one or both arise, as occurred in these cases, the treatment is evident. Some years ago a man of seventy, from Chigwell, had been submitted to herniotomy. He progressed very favourably for several days, when, finding him drowsy and somewhat light-headed, with loss of appetite, I examined the seat of the wound, which, though healed, fluctuated. I opened it up, and gave exit to some stinking pus. A charcoal poultice was applied. On the next day all unfavourable symptoms had vanished, and the patient recovered.

Of these three patients two suffered a good deal from diarrhœa. It is reasonable to suppose that a portion of intestine injured by compression and inflammatory action would take time to recover its health. To give it rest that it may do so, we generally administer one or more doses of opium to arrest peristalsis, and administer liquid nourishment for a few days. Possibly a subacute enteritis, spreading from the damaged portion of bowel, may account for this relaxed condition. This might be prevented by a method of treatment which commends itself to my judgment, recently suggested by Mr. De Berdt Hovell. It consists in supporting the patient by nutrient enemata for a few days subsequent to operation. Certainly, by this method the small intestines would be left quiescent, and possible perforation be averted.

Your patient must not get up until provided with a suitable truss. No patient who is ruptured should be without his truss, except when he is recumbent. The danger of going without it is illustrated by Case 3. For ten years the man had not been without it, and the hernia had never given him any trouble. He omits to wear it, and becomes the subject of strangulation and herniotomy.—*Lancet*, Jan. 13, 1877.

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Cases of Paralysis of the Musculo-Spiral Nerve. By Wm. R. Gowers, M.D., Assist. Phys. to University Hospital, London.

Paralysis of the musculo-spiral nerve is of not very rare occurrence, but it is of interest from the illustration it affords of the consequences of certain forms of nerve-injury. The following cases treated at the National Hospital for the Paralyzed and Epileptic illustrate some points of practical importance in the symptomatology of the affection:—

Case 1. *Paralysis of Musculo-Spiral Nerve from Pressure; Electrical Contractility of Muscles unchanged; Rapid Recovery.* —A porter, aged forty-two, presented himself on January 5 with complete paralysis of the extensors of the wrist and long extensors of the fingers, of one month's duration. He had gone to sleep when lying on a bench on his right side, and woke up unable to extend the hand. Three years before, when at sea, he had had a similar attack from a similar cause, but the paralysis on that occasion lasted only three days. When first seen no improvement had occurred. No extension of the wrist or metacarpo-phalangeal joints was possible. If the proximal phalanges, however, were passively extended, the two distal joints could be readily extended by the interossei, which were unaffected. He complained of tingling in that part of the hand which is supplied by the radial division of the musculo-spiral, but no loss of sensibility could be detected. Electrical examination showed that although there was complete paralysis, there was no loss of contractility to the faradic current in any muscle except in the extensor ossis metacarpi pollicis, which did not act quite so readily as on the other side. There was no increase in contractility to the voltaic current. He was ordered faradisation of the affected muscles, and the voltaic current along the course of the nerve every other day. In a week he had recovered considerable power of extension, and the slight defect in the irritability of the extensor of the thumb could no longer be detected; and in another week he was so rapidly improving that he ceased to attend.

Case 2. Paralysis of the Musculo-Spiral Nerve from Pressure; Change in Electrical Contractility of Muscles; Slow Recovery.—A man, aged fifty-three, in the beginning of September, 1876, went to sleep with his arm over a sharp piece of wood, with the elbow bent. On waking he found the whole arm numb and tingling, and that he could not extend the wrist or fingers. He came to the hospital a month later, and it was then found that there was complete loss of power in all the muscles supplied by the musculo-spiral nerve, and in no others. There was marked flattening of the back of the forearm. Electrical investigation showed that, compared with the left arm, there was considerable diminution of contractility to faradism in the radial extensor of the wrist, and a slighter but distinct diminution in the ulnar extensor of the wrist and common extensor of the fingers. There was no loss of irritability in the supinator longus, but considerable diminution in the force of its contraction; a current of moderate strength caused a much stronger contraction in the supinator longus on the healthy than on the affected side. There was no loss of contractility in the lower part of the triceps, the hand muscles, or the muscles on the flexor aspect of the forearm. The muscles in which the faradic contractility was lessened presented a distinct increase in their irritability to the voltaic current. Faradisation of the affected muscles was ordered, and in a fortnight, although there was no return of voluntary power, the faradic contractility had so far returned that scarcely any difference could be detected between the muscles of the two arms, and the increased irritability to the voltaic current had disappeared. The same treatment was continued, and the improvement in contractility was soon followed by a return of voluntary power, which increased so that by the beginning of January the wrist and fingers could be extended as completely as on the other side. Both the extensors and supinators were weak, however, so that if he raised a weight from the table with the hand midway between pronation and supination, there was a tendency to increased pronation. The weakness of the extensors was shown also indirectly by the defective strength of grasp, which in the right hand was only twelve kilogrammes, while in the left it was thirty-five. The treatment was continued, however, and in another two months the arm was affirmed by the patient (and appeared) to be perfectly well.

Remarks.—The musculo-spiral nerve is of all nerves of the arm that most frequently paralyzed. This is the result of its exposed course as it winds round the humerus beneath the triceps muscle. This position exposes it to two dangers: to the effects of pressure, and to the damage in violent contractions of the triceps. The first of these is the more common, and is illustrated by the cases detailed. The position of the nerve protects it to some extent from sudden violence, but exposes it to damage from long-continued pressure, as in certain postures not unfrequently assumed during sleep. Occasionally, although rarely, paralysis results from pressure during sleep in bed. The patient goes to sleep on the right side with the arm under him, and wakes in the morning with the extensors of the wrist paralyzed. The more common cause is an afternoon nap on a chair or a bench, with the arm hanging over some hard or sharp edge. It is curious that one patient should have had two attacks produced in this way. This may have been due to some habitual position of the arm during sleep, or to the musculo-spiral nerve having a course more than usually exposed. The other way in which the nerve sometimes gets injured is by a violent muscular contraction. Dr. Gowers has seen two cases in which this occurred. One patient was an epileptic liable to attacks of *petit mal.* He felt an attack coming on, and to save himself from falling, seized a rain-water pipe close to which he was standing. On recovering consciousness he found himself still grasping the pipe, and had some difficulty in relaxing his hold, in consequence of complete loss of power over the extensors of the hand. There was at first general weakness of the limb, but it soon became limited to the muscles supplied by the musculo-spiral nerve. These rapidly wasted and presented the loss of faradic and increase of voltaic contractility. In another case the same accident happened during a violent extension of the arm in throwing a stone. There was instantly violent pain in the arm, and complete paralysis of the extensors of the wrist and fingers. A few days afterwards extravasations of blood were apparent along the edge of the biceps and also at the back over the triceps muscle. It is probable that laceration of some of the muscular fibres caused an extensive hemorrhage. In this case, a month after the injury, the faradic contractility was lost in all the muscles of the forearm supplied by the musculo-spiral nerve, and also in the lower part of the triceps muscle. The weakness of the flexors, which is conspicuous in all cases of extensor paralysis, and which was very marked in those above described, is, of course apparent only. The flexors of the fingers, acting on both wrist and digits, can only act on the latter with force if the wrist is kept extended. Flexion of the wrist shortens so much the course of the flexor tendons that only very slight flexion of the fingers is possible. This is easily shown in the healthy. If the wrist-joint be forcibly flexed, the two distal joints of the fingers can be flexed only very slightly, and at the expense of much pain in the flexor muscles in the forearm. The constant carpal flexion on use of the hand in these cases of extensor paralysis often causes a slight backward protrusion of the carpal bones, which is the source of much uneasiness to the patient.

These cases illustrate the prognostic as well as the diagnostic value of the electrical examination of paralyzed muscles. The change in faradic contractility is an index to the state of nutrition of the nerve-fibres both within and without the muscle. The profound diminution in the faradic contractility indicates, as is well known, a degenerated state of the nerve-fibres, the result of an irritating lesion of the nerve at the seat of injury. To this the electrical contractility is the only sure guide. Visible loss of nutrition in the muscles is a less certain indication, since the flabbiness of atony may be mistaken for the shrinking of atrophy. Loss of muscular power is no guide as to the state of the nerves and muscles, as these cases show. Each came under observation a month after the injury. In each when first seen the loss of power was complete; but the first, in which there was no evidence of nerve-degeneration, was well in a few weeks; the second, in which there was marked depression of faradic contractility, was well only in a few months; while in the case of the epileptic, in whose muscles the depression of faradic contractility was profound, nine months passed before there was any return of power, although he also ultimately made a good recovery. Another point in regard to the contractility of paralyzed muscles was illustrated by Case 2. The supinator longus presented no loss of irritability; slight contraction occurred to a current of the same strength as was needed for the healthy muscle, but a stronger current caused far less contraction in the paralyzed than in the unaffected muscle. In testing a muscle the most significant thing to note is the contractility — the weakest current to which it will react; but it is also important to note the power of the muscle—the degree of contraction to a stronger current—since the latter may, in rare cases, be altered as a consequence of nerve-injury, etc., while the former remains normal. It is impossible to doubt the usefulness of electrical applications in such cases. No doubt the slighter cases would recover without its aid, but it is frequently to be noted that the first return of power occurs soon after the commencement of electrical treatment. The excitation of the nerve seems to aid the recovery of a state in which the voluntary stimulus can traverse the fibres. For this purpose, in the case of the musculo-spiral nerve, the voltaic current is most effective on account of the deep course of the nerve beneath the fibres of the triceps muscle, and the voltaic current has much greater power of penetrating a layer of muscular fibre than the faradic. The latter is, as it were, absorbed by the contracting muscular fibres to a far greater extent than the voltaic current. In more severe cases, as in that of the epileptic mentioned, in which all nerve-irritability for a time is lost, the application of the voltaic current to the muscles is often followed by an improvement in their nutrition. In that patient this was very marked, and voluntary power was ultimately regained, although it had been absent for many months, during which the muscles distinctly improved in size under the treatment.—*Med. Times and Gaz.*, May 5, 1877.

HOSPITAL NOTES AND GLEANINGS.

A Case of Placenta Prævia; Narrow Escape from Asphyxia under Chloroform; Intra-uterine Respiration of the Fœtus.—The fact of the establishment of intra-uterine respiration in the subjoined case, which came under Dr. Galabin's care at the Guy's Hospital Lying-in Charity, has an important medico-legal as well as a clinical bearing. Post-mortem examination showed that the left lung had been sufficiently expanded by air to float in water, although the fœtus had probably died at least three hours before delivery.

For the following notes we are indebted to Mr. J. Brett, M.R.C.S., resident obstetric assistant.

On the afternoon of Feb. 12, 1877, a woman twenty-five years of age, between the seventh and eighth months of her fourth pregnancy, sent for assistance. Two weeks before she had had a fall on the left side, and the day previous she had received a blow upon the abdomen. All the morning she had been exerting herself in lifting weights, when suddenly, at 1.30 P. M., she felt a sudden gush from the vagina. At least two pints of blood were lost at this time, and the bleeding continued in lesser quantity. None had occurred previously during her pregnancy. The woman fainted from loss of blood, and was lifted into bed. When first seen she had a pulse of 130, extremely weak. No labour-pains had commenced; the os was sufficiently dilated to admit one finger; and the edge of the placenta was felt partially occupying the cervical canal. Dr. Galabin was sent for, but was not at home. The membranes were then ruptured, ergot administered, and a watch kept upon the patient. Her condition appeared so hazardous that all preparations were made for transfusion, in the expectation that this operation might become necessary before delivery could be effected.

Dr. Galabin visited the patient at 7 P. M. She had then somewhat revived, but was extremely blanched, and no uterine contractions whatever had occurred. The cervix was very rigid, and at least three inches long; the internal os was dilated enough to admit two fingers, and the external os was somewhat wider. The vertex was presenting, but was very high up, being displaced by the placenta. The placenta was still attached posteriorly up to the margin of the internal os. It was separated by the finger from the lower segment of the uterus for about two inches, according to the method recommended by Dr. Barnes, but, the uterus being perfectly flaccid, the hemorrhage was not diminished by this means, but rather increased, and the vagina repeatedly became filled with clots. It was then proposed to introduce a hydrostatic dilator into the cervix, but the patient, who was extremely restless and unmanageable, refused to allow any such manipulation without the use of chloroform. In order, therefore, to avoid more than a single administration—since an anæsthetic appeared hazardous in the patient's anæmic state—it was resolved to perform version if possible. The pulse becoming almost imperceptible before the patient was fully under chloroform, the anæsthetic was changed to ether. She then made a slight effort at vomiting, and was quickly observed to be choking. The jaws were tightly clenched, and could not be forced open till she was apparently dead. The larynx was then cleared by the finger from some vomited matter which obstructed it, and artificial respiration was performed for some minutes, after which natural breathing was restored.

Bipolar version was then performed by Dr. Galabin, the patient being in the dorsal position, and the right hand used internally. The head was already so high that its upper margin was at the level of the umbilicus, and could not be pushed much further by the internal fingers passed through the elongated cervix; it was therefore carried up to the right iliac region by the external hand acting alone, and the left knee was afterwards pushed down within reach of the finger in the cervix. Bleeding was arrested from this time, but the cervix remained too rigid to allow delivery to be completed, although ergot was again administered, and traction made upon the leg. The fœtus was then observed to make convulsive movements, and with each movement a gasping sound was heard from the uterus; this was audible at the other extremity of the small room, and upon auscultation had a startling loudness. It was evident that during version air had found its way to the fundus of the uterus, and that the fœtus, becoming asphyxiated from detachment of the placenta, was trying to breathe. The gasping was continued at intervals for about a quarter of an hour. It was impossible to effect extraction quickly, and no attempt was made to supply the fœtus with air through a tube for fear it should obtain entry into the uterine veins. If a double-action canula had been at hand, it might have been a safe measure to withdraw air by suction through it from the uterus, thus allowing fresh air to supply its place, and keep the fœtus alive until the cervix yielded. About three hours afterwards some uterine contraction commenced, four full doses of ergot having been given. The cervix gradually dilated, strong traction being made upon both legs, and the fœtus was extracted about four hours after the performance of version; it gave no sign of life. An autopsy was made, and it was evident that air had entered the lungs, the greater part of the left lung being sufficiently expanded to float in water. The fact of the intra-uterine respiration of air was thus confirmed. The mother suffered from severe febrile symptoms from the second to the fourth day, the temperature rising to 105°, and the pulse to 140; but eventually she made a good recovery.—*Lancet*, April 21, 1877.

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Removal of Naso-pharyngeal Polypus.—M. Verneuil, of La Pitié Hospital, lately removed from a boy, aged eight years, a large naso-pharyngeal polypus. The operation was attended with considerable hemorrhage; and, in consequence, symptoms of acute anæmia set in; and in the evening of the day of the operation, about four hours afterwards, the boy was so low—the temperature of the body having fallen to 33½ deg. Cent. (92.3 Fahr.)—that the *interne* on duty summoned M. Verneuil to see the patient. M. Verneuil not being at home, it was determined to keep the patient up by administering stimulants, such as brandy and water, pure claret, etc., which had the effect of producing a slight rise of the temperature. At 8 P. M., M. Verneuil, finding the patient still extremely low, at once injected hypodermically ten drops of sulphuric ether, and in about half an hour afterwards repeated the injection. From this time forward, the temperature gradually rose, and about forty hours after the operation was found to be a little above the normal standard. This case elicited some instructive remarks in a clinical lecture from M. Verneuil. In referring to syncope in connection with great operations he said that this state may occur before, during, or after an operation. In the first case, it may be brought on by simple fright, as in the celebrated case of lithotomy related by Desault, in which whilst he was describing the operation to his audience, and delineating on the patient the different steps of the operation, the latter suddenly died on the operating-table before any incision was made. Syncope during and after an operation may arise from nervous shock or from profuse hemorrhage. It sometimes happens that instead of taking place during or immediately after an operation, it may supervene some hours afterwards, which fact would point to the necessity of constant watching and nursing of the patient until he is considered out of danger. Among the remedial agents for this grave condition of syncope, transfusion has been somewhat extensively employed; but M. Verneuil is not at all partial to it under any circumstances. Indeed, he looks upon it as a most dangerous remedy, as the blood, whether of man or of animals, being of a highly putrescible character, would, even when immediate transfusion is practised, be liable to produce septicæmia, or even pyæmia. He took occasion to say that, whenever transfusion is indicated, as in syncope or excessive hemorrhage, the hypodermic injection of ether or ammonia would be preferable to transfusion of blood or any other liquid, even in puerperal or *post-partum* hemorrhage.—*British Med. Journal*, March 31, 1877.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

Administration of Cod-Liver Oil in Malt Extract.—At a recent meeting of the Norfolk District Medical Society, Prof. MARKOE (*Boston Med. and Surg. Journ.*, May 3, 1877) called attention to malt extract as an emulsive agent for cod-liver oils and other oleaginous preparations. At the present time, when cod-liver oil is extensively employed as a therapeutic agent, anything that will neutralize or overcome its disagreeable oily character and bad taste will be welcomed by patients. Extract of malt possesses the power of producing a perfect emulsion with cod-liver oil, and a mixture of equal parts of cod-liver oil and extract of malt was exhibited, having a semi-solid consistence, in which the taste of the cod-liver oil was more perfectly concealed than can be accomplished by any other known process. Other mixtures were also shown containing various proportions of cod-liver oil, and to which various flavoring extracts had been added.

Death during Etherization.—Dr. BENJAMIN W. ROBINSON, of Fayetteville, N C., reports (*Virginia Med. Monthly*, April, 1877) the case of Mrs. McNeil, who consulted him on account of a tumour of the breast, which he extirpated while the patient was under the influence of ether. The tumour returned, and the operation was repeated in ten months. Again after the lapse of six months, a third operation was performed, and Squibb's ether was administered in a conical inhaler. During the inhalation the pulse improved in volume and force. In about twenty minutes after the operation was begun, it was announced that, with gradually increasing pallour, the radial and temporal pulse, which had been failing since the operation began, were extinct, and that the respiration was irregular. Brandy was administered subcutaneously, the foot of the operating table raised, and artificial respiration practised. The lapse of a few minutes promised thorough resuscitation, the patient became conscious, the horizontal posture was restored, and the operation was continued without the inhalation of any more ether. In a few minutes the patient vomited, after which it was found that she was sinking. All efforts at resuscitation now proved unavailing. A post-mortem examination appears not to have been made, but the history of the case leads to the suspicion that death was caused by the trachea becoming choked up with vomited matter.

Deaths from Chloroform.—Dr. CHARLES ANDERSON records (*Clinic*, March 31, 1877) over twenty cases of death from chloroform which have occurred in Cincinnati and its vicinity within the last thirty years. Some of these were not previously recorded.

In the *American Journal of Dental Science*, May, 1877, is reported the death of Dr. Chas. A. Jourdan, caused by the inhalation of chloroform prior to the extirpation of his eye.

The American Medical Association.—The meetings of the Association for some years past, even its most ardent supporters must admit, have not produced the results which should follow from the gathering together of so many able and practical members of the profession. The late International Medical Congress has demonstrated what can be done with the same material, for the most part, under a good plan of organization, with an intelligent arrangement of details, and we trust that the example which it gave will not be lost upon the Association.

We have not seen the programme prepared by the Committee of Arrangements for the ensuing meeting, but trust that it embraces as many as possible of those elements which did much to insure the pre-eminent success of the late Congress at Philadelphia. Judging from the experience of last September, we think every delegate will agree with us in saying that it is very desirable that a detailed programme be published in advance of the meeting, giving the work for each day and hour; that all the Sections meet under the same roof; that a lunch be provided in the building where the meeting is held, so that the members may be kept together the entire day; that a list of delegates registered up to date be published daily; and that the social aspect of the meeting, although an important feature, be kept strictly subsidiary to the scientific work.

At this session of the Association we hope a plan for the future will be devised by which the scientific character of the meetings may be promoted hereafter, and their value enhanced. As tending to the accomplishment of such an aim we would suggest that the general meetings should be solely devoted to the reading of the addresses already provided for, to the reception and action upon the reports from the various Sections communicating the results of their scientific labours, and to such business as may be brought before the Association by the Judicial Council, to which Council all motions relating to private business should be first referred without debate. The meetings of the Sections should be devoted to the consideration of scientific subjects determined upon beforehand, the discussion of which would be opened by reporters, and outlines of whose remarks should be published at least three months in advance of the meeting, so as to promote intelligent debate. The conclusions of the Sections upon the topics discussed could be ascertained by vote, and reported to the Association in general meeting. Provision ought also to be made for the reading and discussion of volunteer papers.

Such changes as are above indicated would, we think, undoubtedly result greatly to the advantage of the Association.

The Association and the Pharmacopœia.—In an able paper read before the Philadelphia College of Pharmacy (*American Journal of Pharmacy*, May, 1877), Mr. Alfred B. Taylor discusses Dr. Squibb's propositions for the seizure by the American Medical Association of the Pharmacopœia of the United States; and he particularly calls attention to that part of the plan for the future revision of the Pharmacopœia, which in Dr. Squibb's opinion is to insure to it a thoroughly *national* character. "The plan which is to be submitted to the American Medical Association, at its meeting in June next, is that it shall organize a Pharmacopœial Council, to be incorporated if necessary, consisting of five members, which council shall be charged with the *entire management* of the Pharmacopœia and all that pertains to it, and be responsible only to the American Medical Association. This council I would propose to form as follows: The nominating committee of the Association to nominate and the Association to elect the president of the council; then the Association to *invite* the surgeon-generals of the army and navy each to appoint one member, and *invite* the American Pharmaceutical Association to appoint two members." (Dr. Squibb's pamphlet, p. 25.) Now for the *modus operandi*. "As the meetings of this council would have to be frequent during the general revisions, and perhaps two or three times a year for the supplementary fasciculi, and as the members would have to educate themselves to the special work, it would, perhaps, be better that the council should be small and compact, and live in adjacent cities." (*Ibid.* p. 9.) As three of the council are to constitute a *quorum* (*Ibid.* p. 54), who may "obtain a change in any of its members," we should probably have, as the final outcome of the so-much-vaunted "nationality" of the enterprise, a pharmacopœia under the entire control of *three representatives of the United States* (small and compact), "living in immediately adjacent cities!" And this is gravely proposed as an eminently "national" improvement on the existing *local* plan of an executive committee of *fifteen*, representing *nine* leading cities, from Boston to Richmond, and from New York to San Francisco, together with a representative of the army and of the navy of the United States.

At a recent special meeting of the Philadelphia County Medical Society held to consider Dr. Squibb's proposition, Dr. Albert H. Smith presented the following resolutions, which were unanimously adopted:—

Resolved, That this Society does not recognize the legal or moral right of the American Medical Association to assume the work of issuing a Pharmacopœia as proposed, nor its fitness for the work, if such right existed.

Resolved, That its delegates to the American Medical Association be instructed to use every proper means, by their votes and influence, to prevent the consummation of the plan proposed by Dr. Squibb.

The following resolutions, offered by Dr. Nebinger, were also adopted:—

Resolved, That in the opinion of the Philadelphia County Medical Society, the propositions of Dr. Squibb to modify the *period* of revision of the United States Pharmacopœia and other proposed reforms, are deserving of careful consideration by the medical and pharmaceutical professions.

Resolved, That in the judgment of this Society, such reforms and modifications of ancient plans can be more safely entrusted to the National Convention for the revision of the Pharmacopœia and its committee of revision, than to any new organization.

Resolved, That the action of this Society be officially transmitted to Dr. John C. Riley, President of the Pharmacopœial Convention at Washington, to Dr. Bowditch, President of the American Medical Association at Chicago, and to Dr. Squibb of Brooklyn.

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Medical and Chirurgical Faculty of Maryland.—The 79th annual session of this Association was convened at Baltimore, on April 11th, Dr. Christopher Johnson, president, in the chair. The following officers were elected for the ensuing year: President, A. B. Arnold, M.D. Vice Presidents, Drs. S. C. Chew, Ferdinand Chatard, and Charles H. Jones. Secretary, Dr. W. G. Regester.

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Mississippi State Medical Association.—The tenth annual meeting was held in Grenada, on April 4th, Dr. P. J. McCormick, president, in the chair. The following officers were elected for the ensuing year: President, Dr. B. A. Vaughan, of Columbus. Vice-Presidents, Dr. E. W. Hughes, of Grenada, T. R. Trotter, of Duck Hill, T. P. Lockwood, of Crystal Springs, and J. T. Parker, of Buena Vista. Secretary, Dr. Wirt Johnson, of Jackson. The next meeting will be held at Jackson, on the third Wednesday in January, 1878.

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Texas State Medical Association.—The annual meeting of this Society was held at Galveston on April 3d, Dr. B. H. Harrison, of Columbus, president, in the chair. The following officers were elected for the ensuing year: President, Dr. Kelley, of Galveston; Vice-Presidents, Drs. Cupples, of San Antonio, Swearinger, of Austin, Sayers, of Waco; Treasurer, Dr. Achison, of Denison. The next meeting will be held in San Antonio on the first Tuesday in April, 1878.

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Changes in the Regulations of the Medical Department of the University of Pennsylvania.—At a special meeting of the Board of Trustees of the University held on the 15th of May, it was resolved that hereafter all students shall be required to attend three annual courses of lectures of five months each, each course to be so graded as to prepare the student for the studies of the next. At the close of each annual course, examinations on the studies will be held to test the student's fitness to pass on to the next course. The above arrangement of studies will enable the third year to be devoted chiefly to the study of practical branches, and it is proposed to teach these "in a more thorough way than has ever been done in America." There will be no preliminary examination for admission. The fees will be $140 for the first and second years each as heretofore, and $100 for the third year. The above changes will not affect in the least the status of the present matriculants of the school, who can complete their studies and graduate upon the old plan, unless they elect voluntarily to pursue the new course. The professors will hereafter be paid salaries, so as to be independent of the size of the classes.

This system is substituted for the present two-years course of lectures which, as now delivered, are identically the same each year; and it introduces into medical study the system which is pursued in all other forms of study.

To successfully carry out these efforts to give a better education, which has been demanded by the profession in one form or another for the last thirty years, it is needless to say that a large endowment fund is necessary, and for it the Trustees confidently look to the friends of the University. Already a number of the citizens of Philadelphia have liberally come forward and have guaranteed for several years the University against any pecuniary loss which may result from the temporary diminution in the size of the classes which, it is thought, may for a few years follow upon the adoption of the improved curriculum; and we trust that the profession at large will be equally prompt in giving their sympathy and support to this commendable effort to elevate the standard of medical education in this country.

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Harvard University.—Dr. John P. Reynolds has been appointed to the Chair of Obstetrics at the Harvard Medical School, left vacant by the death of Dr. Buckingham.

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Changes in the Philadelphia Medical Schools.—Dr. Robert E. Rogers has been elected to the Chair of Medical Chemistry and Jurisprudence in the Jefferson Medical College. Dr. John Neill has resigned the Chair of Clinical Surgery in the University of Pennsylvania.

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Maryland Medical Journal.—The first number of this periodical was published at Baltimore on May 1. It is an octavo of 36 pages, under the editorial and business control of Drs. H. E. T. Manning and T. A. Ashby. It contains four original articles, and editorials and selections. In placing it on our exchange list, we cordially wish it all success.

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Homes for the Reformation of Intemperate Women. — Various attempts have been made to establish reformatories for drunken women, but heretofore all have failed to accomplish any encouraging results, and a few years have witnessed their closure. The class of cases received has not been permanently impressed, and the one most likely to be reformed has not been induced to submit their cases for treatment. The "snuff-chewing sisterhood" compose about 80 per cent. of the applicants; and experience teaches that their drunkenness is so interwoven with other vices, that it is next to impossible to reform them. But there is a class of cases in all our large cities that ought to be reached, and that might be benefited, but as yet they have not been; we refer to those in the higher walks of life, who by birth, education, and general deportment, are, when sober, recognized as ladies. They have not been reached, for the following reasons, viz.: 1. Female reformatories cannot be conducted as those for men. Publicity is a great obstacle to the former, but a benefit to the latter. 2. Secrecy rules to a large extent in the drinking of women; and the more public it becomes, the less hope is there for reformation, if received into a home. Shame has a great influence, and treatment must be made as free from the eye of the public as possible. 3. A mixed company is rather an advantage in a home for men, but ruinous to success in one for women, as they will not subject themselves to the risks of subsequent forced association or recognition on the part of objectionable acquaintances made while under treatment.

To carry out these views, a home has been opened by a society of ladies in a neatly furnished house at No. 220 North 13th Street, Philadelphia, designed exclusively for the class mentioned. The passer-by only sees what is apparently a private dwelling; but within are all the appointments of a small, well-ordered public institution, having its Matron, Board of Managers, etc. Privacy is the order of the house; and the inmates, it is hoped, will be secured through the medical profession, and their friends or relatives. Although in these cases moral restraint is generally required rather than medical treatment, yet the latter, when necessary, will be here administered under the supervision of Dr. Robert P. Harris.

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Obituary Record.—At Philadelphia, on April 12, **Jonathan M. Foltz**, M.D., late Surgeon-General U. S. N., aged 67 years.

Dr. Foltz was born in Lancaster County, Pennsylvania, and studied medicine at Jefferson Medical College, in this city, where he graduated in 1830. He was commissioned assistant surgeon in the navy April 4, 1831, and was ordered to the frigate Potomac, in which vessel he made a voyage around the world. He served on various American ships of war, and was surgeon on the fleet sent to the Gulf of Mexico during the war with Mexico. During the rebellion, he served on the frigate Santee, and was under Admiral Farragut in all his operations on the Mississippi River and at Mobile. He was a member of the Board of Medical Examiners, from 1864 to 1867. In 1870, he was made President of the Naval Medical Board. In 1871, he was appointed Chief of the Bureau of Medicine and Surgery, with the rank of Commodore, and was retired in 1872, after forty-two years of active service.

FOREIGN INTELLIGENCE.

Treatment of Ovarian Hysteria.—The correspondent of the *Lancet* in describing a visit to the Hospice de le Salpétrière makes the following report of Prof. Charcot's treatment of hysteria:—

We had the opportunity of seeing Dr. Charcot apply his method of stopping a fit instantaneously in women affected with "ovarian hysteria." Two women fell into a fit, and Dr Charcot by applying pressure with the hands to the diseased ovary arrested the paroxysm almost immediately.

Dr. Bourneville, who accompanied me on my visit, spoke of the various new substances which he is now trying under the direction of Dr. Charcot in cases of nervous disease, and especially of nitrite of amyl, bromide of camphor, bromide of sodium, and bromide of zinc. He is still very well satisfied with the effects of bromide of camphor since his first researches on the drug. It is administered largely at La Salpétrière, in the form either of Clin's capsules or of enemata. In a great number of epileptic cases it has been found to diminish the vertigo most notably, and to diminish in a good many cases the number of fits. It has rendered considerable service in the delirium which follows the fits in epileptic mania, and has proved very useful in hysteria. I have been promised Dr. Bourneville's observations on the other drugs I have mentioned. I cannot conclude, however, without remarking that the hydropathic and bathing arrangements of such a large and special establishment as La Salpétrière seem scanty and insufficient. This part of the hospital arrangements is so very important in the treatment of nervous affections that it is strange that the Assistance Publique does not understand the good, and even the saving, that would result from greater liberality in the supply of baths.—*Lancet*, April 14, 1877.

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Administering Iodine through a Nurse.—Dr. Gemmel, of Birnbaum, relates (*Berlin. Klin. Woch.*, April 9) the case of a feeble, rickety child a year and eight months old, to whom it was thought of great importance that iodine should be administered, which, however, in any form tried, had induced vomiting and irregular action of the bowels. It was then resolved to try giving it through the milk of a nurse, and in a few days after she had begun taking it her milk was sufficiently impregnated with it. It was found also that a cow's milk could be similarly affected by giving the animal ten grammes of iodide of potassium per diem for a fortnight. The child under the use of the nurse's milk bore the iodide very well and soon recovered.—*Med. Times and Gaz.*, April 28, 1877.

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Death during Anæsthesia.—Anæsthesia was induced in a female, aged 21, who was to undergo amputation of the leg at Westminster Hospital, London. Chloroform to the extent of two drachms was given on lint, and the patient quietly and quickly became insensible; then ether, poured upon a sponge placed in a felt cone, was substituted for the chloroform. Meanwhile, Esmarch's bandage had been applied to the limb above the gangrenous part, and the band secured at the lower part of the thigh. The patient then became blue in the face and pulseless at the wrist; the lips were white, and the heart's action could not be felt. Artificial respiration was immediately begun, and the bandage and band were removed from the limb. In spite, however, of all attempts at resuscitation, which were continued for fifty minutes and which included cold affusion, flipping with towels, and the application of the interrupted current to the præcordium, the heart failed to beat again. The pupils were equally contracted throughout these attempts. The amount of ether used was two ounces, and the patient was moribund in about two minutes after the ether was begun. The chloroform was given by itself for about three or four minutes, and ether by itself for about two or three minutes. At the *post-mortem* examination, the surface of the heart showed friction-patches, but no signs of pericarditis. The wall of the right ventricle was very thin; that of the left side was thicker than usual, pale in colour, but not unusually soft. The mitral valves were much thickened, the chordæ tendineæ thickened, and the musculi papillares hypertrophied. At the junction of the anterior cusp of the mitral valve with the wall of the ventricle was an irregular ulcerated patch about as large as a silver sixpenny-piece, to which small masses of lymph were adherent. The aortic valves were thickened, but acted efficiently. Two large decolorized clots were found in the left ventricle.—*British Medical Journal*, March 31, 1877.

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Daltonism and Navigation.—In the *Lyon Médical* for January 21, Dr. Favre, who is well known as an authority on colour-blindness, urges the necessity for a systematic examination of sailors in that respect. After much inquiry, he has found that the subject has been hitherto overlooked, and, with others who are favourably placed for judging, he agrees in the opinion that many of the disastrous collisions at sea, which occur principally at night, are due to a false perception of the colours of the lights used as signals.

Dr. Favre quotes from a recent paper by M. Féris, in proof of the fact that colour-blindness exists among the sailors of the French navy. M. Féris examined 501 sailors at Lorient, and found that 47, or about 9.4 per cent., were wanting in the accurate perception of colour. He also examined 152 men on board the *Hamelin*, and found 18, or 11.83 per cent., affected. These were not all equally faulty, and M. Féris adopted a classification which may be a useful guide to future investigators. 1. Those who hesitated in distinguishing colours, of whom there were 5. 2. Those who confused slight shades of different colours, as pale blue for green, 2 in number. 3. Decidedly colour-blind; (*a*) confusing blue and violet, of whom there were 6; (*b*) confusing both blue and violet, and also red and green, of whom there were 4.

Dr. Favre concludes his paper with some very forcible remarks on the necessity which such results show for a systematic examination of the eyes of those following maritime occupations.—*London Med. Record*, March 15, 1877.

—

International Medical Congress, Geneva, 1877.—The International Medical Congress will be opened at Geneva, on the

9th of September, under the auspices of the Swiss Federal Council and of the Canton and City of Geneva; and will remain in session the entire week. It will be composed of delegates from medical societies, foreign and local. Members only will have the right to participate in the proceeding of the Congress. The sessions will be held at the University. The registration book will be opened on the 8th of September, from noon until 5 o'clock.

The Congress will meet daily, first in sections, and afterwards in general meeting. The conclusions of the sections on the subjects designated for discussion will be reported to the Congress in general meeting. The general meetings will be devoted to the reception of the reports from sections, and, if desired, to their discussion; and to conferences or to reading of communications upon subjects of general interest.

Delegates desiring to make communications upon subjects not on the programme are requested to notify the committee at least 15 days before the opening of the Congress. The time allotted to each speaker is twenty minutes. The French will be the language of the Congress, but members may speak in any language.

The following preliminary programme for the various sections gives the topics for discussion, with the names of the reporters thereon:—

Section I. *Medicine.*—1. Ulcerations of the Stomach. Prof. Lebert. 2. Parasitic Affections of the Skin. Dr. Hardy. 3. Etiology of Typhoid Fever. Dr. Bouchard. 4. Treatment of Fever by Baths. Dr. De Cévenville. 5. On the Different Tissues found in the Organism, Dr. Zahn. 6. Indications and Therapeutic Value of Tracheotomy in Croup. Dr. Revilliod. 7. Universal Pharmacopœia. Prof. Gille.

Section II. *Surgery.* — 1. Bloodless Method of Esmarch. Dr. Esmarch. 2. Influence of Wounds upon Pregnancy. Dr. Verneuil. 3. Treatment of Ozœna. Dr. Rouge. 4. Results of Articular Resections. Dr. Ollier. 5. Galvano-cautery. Dr. Julliard. 6. Means of Transportation for Wounded. 7. Urethral Fistulæ. Dr. Reverdin.

Section III. *Midwifery and Gynæcology.*—1. Placental Souffle. Dr. Rapin. 2. Artificial Feeding of Infants in the First Year. Dr. Zweifel. 3. Anæsthesia during Labour. Dr. Piachaud. 4. On the Law of Growth of Infants in their First Year, and of the Physiological and Pathological Deviations. Dr. Odier. 5. Pseudo-membranous Dysmenorrhœa. Dr. Gautier.

Section IV. *Public Medicine.*—1. Influence of Alcoholism on Mental Diseases. Dr. Magnan. 2. Influence of Adulterations of Alcoholic Liquors upon the Health of those who make and consume them. Dr. Guillaume. 3. Questions in Medical Geography. Dr. Lombard. 4. Influence of Immigration from the Country to the Cities. Dr. Dunant.

Section V. *Biology.*—1. Physical Characters of the Electric Discharge of the Torpedo. Physiological Analogies of this Discharge with Muscular Contractions. Dr. Marey. 2. Cerebral Localization. Dr. Broadbent. 3. Cause of Sleep. Dr. Preyer. 4. The Entozoa of Man. Dr. Vogt. 5. Functions of the Spleen. Dr. Schiff. 6. Histology of the Ovum and rôle of the Zoosperm in Fecundation. Dr. Fol. 7. Physiological Antagonism. Dr. Prevost.

Section VI. *Ophthalmology, etc.* — 1. Indications for the Enucleation of the Globe of the Eye in cases of Sympathetic Ophthalmia. Dr. Warloment. 2. Etiology and Prophylaxis of Myopia. Dr. Haltenhoff. 3. What are the best Methods for determining the State of the Principal Functions of the Visual Organ? (*a*) acuteness of vision; (*b*) perception of colours; (*c*) refraction and accommodation; (*d*) visual field (indirect vision); (*e*) mobility of the eyes. Dr. Fol. 4. Tenotomy of the Tensor Tympani. Dr. Colladon.

During the Congress, there will be held an exposition of apparatus or new instruments used in medicine, surgery, physiology, etc.

All communications relative to the Congress should be addressed to the Secretary General, Dr. Prevost, 8 Rue Eynard, Geneva.

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VOL. XXXV. JULY, 1877. No. 415.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on Cases of Exostosis upon the first Rib. Delivered at the Middlesex Hospital. By JOHN W. HULKE, F.R.C.S., Surgeon to the Hospital.

There are, gentlemen, now in the hospital two cases of a rather rare disease—exostosis upon the first rib; one under my care in Regent ward, the other under the care of Dr. Thompson, who kindly allows me to refer to it. I shall also read to you notes of a third case under my care in 1873.

Case I.—A plump and well-grown girl, aged fifteen, with auburn hair, and a remarkably demure, placid expression of features, living at home, was admitted on October 24, complaining of weakness and painfulness of the left arm, increased by exertion, and attributed by her to a knob in the root of the neck at the left side. This seemed to be about as large as a walnut. It was deeply placed behind the inner half of the collar-bone, which overlapped and partially hid it. It was quite fixed, not following the movements of the collar-bone, nor swayed during extreme bending of the neck. Its bony attachment was beyond doubt the outer surface of the first rib. The subclavian artery, lifted by it out of its usual position, crossed the front of the knob below its summit; the pulsations of the vessel were visible, and very slight pressure

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upon it backwards against the knob sufficed to stop the wrist-pulse. A couple of cords, which, from their direction and figure, as also from the pain produced by pressure upon them, were obviously part of the brachial plexus, crossed the summit of the knob from above downwards and outwards. Crossing these cords and the top of the knob from before backwards as if coming from the third part of the subclavian artery, was a smaller pulsating vessel, presumably the arteria transversalis colli. The inner part of the knob was crossed from above downwards and forwards by a muscular band—the outer border of the musculus scalenus anticus — which hid its innermost limit, whilst its outer border reached nearly to the anterior margin of the musculus trapezius. These were the objective symptoms. The subjective were alleged numbness and painfulness, chiefly in the outer and back parts of the shoulder, arm, and forearm, in the distribution of the circumflex and external cutaneous branches of the musculo-spiral nerve. The pain was not constant; its intensity varied. The tactile sensitiveness of these parts was not found to be less than that of the corresponding parts of the right limb. She had, she said, a want of power in the left limb, but its strength, roughly tested by bidding her squeeze both my hands with her own, showed no diminution, and careful comparative measurements of the arms did not show any wasting of the left, the muscles of which certainly felt as firm as those of the right arm. Sphygmographic tracings of the two wrist-pulses did not show any difference of the left. She slept well and ate well, and her general appearance and manner were not those of a person in constant pain.

The painfulness of the arm began, she said, about eighteen months before, and some four months later she first discovered the knob in her neck. It was then as large, she thought, as at the date of her admission into the hospital.

The extreme hardness, the fixity, the nodular figure, the definite outline, the slow growth of the knob, and the age of the patient, concurred to place its nature beyond dispute; it was obviously an *exostosis*, and it sprang from the first rib.

The next case is so similar that I will read it before commenting upon the first:—

Case 2.—A well-grown, rather thin, but healthy-looking blonde, aged twenty, was admitted into Regent ward, March 6, 1873, with a knob in the right side of the root of the neck, rising visibly above the middle third of the collar-bone. Its hardness was that of bone. It was fixed to the first rib. The subclavian artery crossed the front of the knob just below its summit, lying almost subcutaneously on it, so that its pulsations were very apparent. The right radial pulse was smaller and weaker than the left. Behind the artery, rounded cords crossed the summit of the knob in a downward and outward course; their form and the tenderness felt when pressure was made upon them proved them to be part of the brachial plexus. The front border of the musculus trapezius overlapped and concealed the outer border of the knob, and the highest part of the knob was crossed from before backwards by an artery much smaller than the subclavian, from which it seemed to spring—probably the arteria transversalis colli. The outline and figure of the knob were even, smooth, nodular, and very definite.

She had, she said, first become aware of the existence of the knob two years before, happening to feel it whilst washing herself; her attention was not drawn to it by any pain or discomfort. About five months ago her arm was accidentally twisted backwards behind her with some force. From that time she had been liable to twinging pain in the right side of the chest and shoulder, and her impression was that since this accident the knob had grown a little larger.

This case had been mistaken upon a superficial examination for an aneurism of the subclavian artery.

Case 3.—The general features of the exostosis in Dr. Thompson's patient are so similar that a detailed description is scarcely necessary. She too is a girl, nineteen years old, with a pale complexion, and rather worn face. She is under treatment for a gastric ulcer. The exostosis is on the left side. It springs from the outer surface of the first rib; its lower part is hidden by the collar-bone, and the musculus scalenus anticus and musculus trapezius overlap respectively its anterior and posterior borders. The brachial artery lies upon its front, lifted well above the collar-bone, and its summit is crossed by cords of the brachial plexus. She complains of weakness and painfulness of the limb; the latter she generally, but not constantly, refers to the distribution of the circumflex and musculo-spiral nerves.

Probably the first thing, gentlemen, that will have struck you on hearing these cases is that the patients are all three women. Two others which I have seen were also women; and Mr. Hilton and Sir William Fergusson, who have each seen some three or four cases, have verbally informed me that these, too, were all of the female sex. No example of exostosis of the first rib in the male sex has yet come under my observation; but it may well be that with larger numbers this preponderance of women may cease. I have not seen any statistics of exostosis upon the long bones of the limbs bearing upon the liability of the two sexes; but the impression I have formed from my own experience is that here the liability is pretty evenly shared by both. Another peculiarity is that in all these cases the exostosis was single, whereas in the limbs exostoses are so often multiple. Mr. Clarke had, some time ago, in Bird ward, a young girl about twelve years old, with some half-dozen exostoses on her legs and arms; and similar examples of this multiplicity are by no means uncommon.

With respect to their etiology, all we can say is (and this guardedly) that sex seems a favouring condition, as youthfulness is certainly, for this exostosis as for those upon the limb-bones. The three patients whose cases I have described were respectively fifteen, twenty, and nineteen years old, and the exostosis was known to have existed one and a half, two, and three years respectively when the patients first came under observation. These patients were not the subjects of any particular diathesis; they seemed, excepting the third, to be in perfect health. The third patient's health is not good; her impaired general nutrition is probably attributable to the stomach ulcer. With regard to the occurrence of any local exciting cause—*e. g.*, a mechanical injury—the part of the rib from which the exostosis springs is so protected by the collar-bone that no blow can reach it. The last patient attributed the knob to injuries received by being thrown down and trampled on by a mob on the Thanksgiving Day for the Prince of Wales's recovery, but on questioning her it was elicited that the only part of her chest which felt sore from these bruises was the "pit of the stomach," and no bruise was visible here or elsewhere, so that I think the idea of an injury to the rib from this accident cannot be seriously entertained. I am not aware of any published descriptions of exostosis on the first rib or of operations for their removal, in the absence of which the exact point from which these exostoses usually spring is unknown to me, but it cannot be far from the tubercle at the insertion of the scalenus anticus muscle, and in this respect the costal exostosis resembles the common exostosis at the lower end of the inner femoral condyle, which is usually rooted in the neighbourhood of the insertion of the long tendon of the adductor magnus muscle. This similarity suggests that under some circumstances, yet unknown to us, excessive tensions of the bone and periosteum by inserted muscles may provoke a bony outgrowth in these situations. The formation of bony rays in the fibrous attachments of the adductor muscles to the pelvis, which has been often observed in men who pass much of their lives in the saddle, lends support to this supposition. It must not be overlooked that, as regards the femur, the epiphysial plate of cartilage lies in the level of the root of the exostosis, and is still unossified at the age when these exostoses occur.

As regards treatment, it will generally be prudent to advise palliative measures only—as a sling, to take off the drag of the limb, and the avoidance of all unnecessary efforts. Bearing in mind the important structures in close relation to the exostosis—the subclavian artery, brachial cords, and the pleura (which, as you are all aware, rises above the level of the rib)—I have not, in any of the cases I have yet seen, felt justified in recommending excision; for I think that nothing short of very decided pain and disability of limb would warrant the patient in exposing her life to the not inconsiderable risks which even the best conceived and best executed operation must entail. In the case in Regent ward in March, 1873, the question of an operation was not seriously discussed, because the woman entered the hospital with a fixed determination not to be cut. In our first case the girl's statement of her pains and numbness, and of the disability of the limb, are, I am disposed to think, somewhat overdrawn; but as her assertions are very positive and unvarying, I have placed her position fairly before her and her mother, telling her that whilst I could not propose the removal of the knob, I would not decline if they desired me to undertake it. They have, as I think wisely, decided to defer an operation for the present. Were an operation undertaken, I should fear to use a bone-forceps or chisel, knowing the textural change which the parent bone often has undergone about the root of an exostosis, weakening it, and having in mind the comparative thinness of such a bone as a rib—although the first rib, especially its inner border, is comparatively strong. I should fear that the jarring, which is unavoidable in using these instruments, might splinter the rib and leave a rough surface, for smooth cutting with the chisel requires the tissue to offer a certain resistance, to be kept perfectly steady, and to have enough bulk to absorb the most of the momentum of the blow. The division of the neck of the exostosis with these implements must also necessarily be made from without inwards, by which direction the risk of injury of the pleura would be greater. My idea would be to expose the surface of the knob where it is uncovered by the large artery and nerve-cords, to divide the capsule of condensed cellular tissne which usually sheathes such tumours, and to push back with a blunt raspatory this, and with it all structures in juxtaposition with the knob, until its neck was so far exposed that a fine chain-saw could be looped round it, with which it could be cut through from within outwards, leaving a perfectly smooth bony surface without any asperities which would damage the artery and nerves, and without any dangerous jarring. I am, however, bound to tell you that, being ignorant, as we necessarily are, of the size and extent of the attachment of the exostosis—whether it reached far inwards round the inner border of the rib—the practicability of thus sawing it off, and indeed of removing it in any way, could only be ascertained in the course of the operation.—*Med. Times and Gaz.*, Feb. 24, 1877.

HOSPITAL NOTES AND GLEANINGS.

Notes of Practice at the St. Bartholomew's Hospital.

Intestinal Obstruction.—A bricklayer, aged 29, had been healthy till his present illness, which commenced three weeks previously to admission with severe constipation and vomiting of food. He had taken several doses of castor oil and drastic purgatives before coming to the hospital; the bowels were, however, very slightly moved thereby. A very small amount of feculent matter was passed, but "much blood and slime." The vomiting was attended by great abdominal pain, and became bilious, but unattended with feculent matter. He had been able to take but very little nourishment, was somewhat emaciated, and greatly prostrated. On admission, the abdomen was distended and painful; the central portion hard and prominent; the flanks hollow and tympanitic, indicating an empty condition of the colon and a loaded state of the small intestines, probably depending upon obstruction near the ileo-cæcal valve. The glands in the axillæ and groins were enlarged. There was some loss of flesh; and his general appearance suggested the presence of abdominal cancer as not improbable. Temperature 98.4 deg. There was no history or any likelihood of lead-poisoning. He was ordered a hot bath and subcutaneous injections of morphia. In a few hours the vomiting ceased; he began to pass copious loose motions, and within two days was free of all pain and abdominal tenderness, and the tongue cleaned spontaneously. No purgative or other medicine was given.

Dr. Southey then narrated the case of a young woman who had been attacked three days before, on board ship, with great abdominal pain, complete obstruction of the bowels, and vomiting becoming fecal. She had been treated by the ship's captain with ten grains of calomel and one scruple of jalap powder every two hours. This occurred during a menstrual period, and suggested possible obstruction from pelvic hæmatocele; examination, however, did not confirm this idea. She was evidently very ill. The rectum was emptied by enemata; no obstruction could be felt by the finger; the loins were hollow and resonant, and the hypogastrium hard, indicating an empty colon and loaded small intestines. The long tube was then passed, but was soon arrested by an obstruction (very probably the promontory of the sacrum); only a little fluid could be injected, and that caused great pain. It was proposed to the patient to administer chloroform before proceeding further, but she declined it. The question of abdominal section was proposed, but it was decided to try the following plan first. The patient was placed in the genu-pectoral position, the tube again inserted, and the anus held closely around it. A siphon bottle of soda-water was then connected with the tube, the bottle being placed in hot water to increase the elasticity of the gas contained in it. On opening the valve of the bottle, and allowing the gas and water to ascend into the rectum, enormous abdominal distension and severe pain resulted. Two siphons of soda-water were thus used. The patient then felt "something give way or burst," and copious action of the bowels followed. Probably some band of adhesion gave way, or a twisted portion of intestine was unfolded. In two days the patient was well enough to undertake a journey. No medicine was used, except subcutaneous injections of morphia. The plan was recommended two years ago in one of the French reviews, and it seemed preferable to the simple injection of fluid, the elastic gas forcing its way more easily than fluid would do.

Rheumatic Fever. — Dr. Southey frequently uses salicylic acid after the first week of the fever, giving ten-grain doses, dissolved in liquor ammoniæ acetatis every two hours, to twelve doses, and then every four hours, or according to the symptomatic indications, but producing slight physiological effects, as noises in the head, etc. Dr. Southey is of opinion that this mode of treatment reduces the temperature, lessens arthritis, and renders the patient less sensitive to the pain; not, however, preventing endocarditis or other complications. In *pericarditis*, it was pointed out that an amount of effusion, not causing perceptible increase of præcordial dulness, may almost always be detected by an increase in the rapidity of respiration.

Intracranial Syphilis.—A man, aged 37, complained of severe and continuous pain in the head. He was in hospital last January with weakness of the left arm, leg, and of the facial muscles, and paralysis of the external rectus of the right eye. Syphilis being suspected, iodide of potassium was given in large doses, with the result of apparent cure. He has returned with great weakness of both legs, so that "his body seems too heavy for him." In going up stairs, there is great difficulty, and he complains of pain in his legs. The tibiæ are somewhat tender, and the muscles rather wasted. He also complains of constant pain in the left side of his head, worse at night or on any movement. The power of taste is lost (glosso-pharyngeal nerve), but the perception of bitters and acids is retained (gustatory). Pus is seen coming from above the palate, probably from the posterior portion of the nasal bones being diseased. His nights are restless, and digestion is indifferent. He was ordered fifteen grains of iodide of potassium three times a day, and two drachms of Carlsbad salt in hot water every morning.

OUT-PATIENT DEPARTMENT (DR. DUCKWORTH).

Diabetes Insipidus.—A healthy looking man, aged 53, complaining of thirst and debility, had been under treatment since February; he then weighed twelve stone twelve pounds, and was passing eight pints and a half of urine, of specific gravity 1008 (average). He had noticed loss of flesh for eighteen months, having lost two stone weight by Christmas last, at which time thirst became a prominent symptom. No determining cause was apparent; his previous health had been good. No lung-change was perceptible. He had not been able to discover any change in symptoms to be dependent on diet, but found that beer made him worse; he takes sherry and water. He has been continuously treated with extract of valerian only, in increasing doses of four, eight, twelve, and fifteen grains three times a day, and is now taking forty-five grains daily. At present the amount of urine is five pints daily, of specific gravity 1012; no albumen, no sugar. He weighs thirteen stone, and is improved in his general health.

Favus.—This lad had been an in-patient for a year or more, and was shown to the Clinical Society two years ago (see James Bryan (*Transactions*). At that time he had the disease in a characteristic form, with well-developed "favus-cups," the marshy smell, etc. The case has improved, but has not been cured, though many plans of treatment have been carefully carried out with frequent epilation. He is a strumous lad, small for his age, with pale complexion, long eyelashes, large coarse teeth; arms, back, and chest hairy, a sign of degenerative type. Lately the glands of the neck have enlarged, and signs of pulmonary phthisis have developed. The head is now very impetiginous; it was ordered to be kept clean with oily poultices and thorough washing. As to diet, milk, bacon, and fatty food are recommended; but, unfortunately, this is unpalatable to the boy. He was ordered cod-liver oil and tonic mixture.

Double Facial Palsy.—A man, aged 33, was completely deaf with both ears; no otorrhœa. There was double facial palsy, complete on the left side, less so on the right. There were no signs of syphilis, but there was necrosis of the lower jaw, resulting from an injury four years ago. The deafness and facial palsy came on last October. The case was transferred to the aural surgeon.

Emphysema and Facial Palsy.—A man, aged 50, presented the usual signs of emphysema and chronic bronchial catarrh. The condition of his face was remarked upon, the puffy cushiony state of his cheeks, with dilated venules and deeply marked labio-nasal furrows. There was slight facial palsy of the right side, not complained of by the patient, and not very apparent till he was made to grin and show his teeth, and then close his eyes; the thickened indurated condition of the face concealed the partial palsy. On inquiry, a scar was found behind the ear, where a tumour had been removed when he was ten years old; doubtless the facial nerve had been injured then.

Varicosities of the Face were pointed out as being common in cabmen and others much exposed to the weather, also in those addicted to alcohol, or the subject of emphysema, or cirrhosis of liver or kidneys, and as especially worthy of note when occurring at an early age.

Bronchiectasis and Fetid Bronchitis.—A woman, aged 24, complained of dragging pain in the left side of the abdomen and some cough. It was noticed that the ungual phalanges were markedly bulbous; this suggested some chronic obstruction to the circulation within the thorax, such as fibroid changes in the lungs, emphysema, mixture of arterial and venous streams in the heart, etc. A similar condition of "bulbous nose" is not uncommonly seen in such cases. Nothing was found wrong in the abdomen, except a loaded colon; constipation is often of a week's continuance. The left side of the chest was found contracted, with signs of fibroid induration, contraction of the lung, and bronchiectasis. She had been ill for eighteen months with fetid bronchitis and slight hæmoptysis. Five years ago she was laid up with acute chest trouble, and the patient has noticed her fingers enlarging since then. Probably there is great thickening of the pleura, with adhesions, the lung being contracted. The heart is not displaced. She was ordered ten drachms of confection of senna in the morning; cod-liver oil, quinine mixture with ten minims of glycerine of carbolic acid, and to have the chest painted with iodine liniment.

Bromine Acne was produced in a girl, aged 18, by using half a drachm of bromide of ammonium twice a day to check her epileptic fits. The following lotion almost completely removed them during the continuance of the bromide mixture: ℞. Sulphuris precipit. ʒiij; spiritûs camph. ʒj; aquæ calcis ad ℥iij. Fiat lotio.

Insomnia, depending upon excessive mental activity, as the worry of business or other anxiety, may generally be best treated by bromide of potassium, taken early in the evening, and followed by a light supper. This allows the full absorption of the drug before the hour of rest, and renders its action more certain. Dr. Duckworth has tried lupuline extensively, but has not found its action as a soporific satisfactory. — *British Medical Journal*, May 19, 1877.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

American Medical Association. — The twenty-eighth annual meeting of this Association was held in Chicago, on June 5th, 6th, 7th, and 8th. About 650 delegates were present.

First Day.—The Association was called to order by Dr. J. Marion Sims, who introduced the President elect, Dr. Henry I. Bowditch, of Boston. Dr. N. S. Davis, on behalf of the medical profession of Chicago, delivered an address of welcome, and Dr. Bowditch then read the annual address, which had for its title, The Past, the Present, and the Future of the Association.

Dr. Bowditch recalled the enthusiasm that prevailed at the earlier meetings, at which the *élite* of the profession from all quarters of the Union attended and read papers or took part in the debates, and contrasted it with the present. He thinks we must admit that the meetings, with perhaps a few exceptions, rarely are carried out with the entire co-operation of the *whole* profession, as they were in the earlier years of its existence; and he is sure that the meetings have lost reputation in the Eastern and Middle States, and he infers that a similar feeling exists elsewhere, because he notices the absence of some of the prominent Western and Southern men. This result he ascribes to the action of various causes; he thinks too much was expected of the Association, that the meetings were victimized by individuals who were smitten with the *cacoethes scribendi aut loquendi*, that the *Transactions* have been made bulky by the publication of many worthless papers, and that the representation in the Association is too large.

As regards the labours of the publication committee, Dr. Bowditch suggests, that, as in the Smithsonian publications, nothing shall be published but that which, after having been read, shall have been approved by a committee of experts, whose names shall be unknown. To advance the scientific character of the meetings, Dr. Bowditch advocated the appointment of a standing committee of five to procure scientific papers for each annual meeting, abstracts of which papers should be published some months in advance, so that members could come to the meetings prepared for abler discussion of the topics involved.

On motion of Dr. Brodie, of Mich., the thanks of the Association were tendered to the President for his interesting address.

Dr. Brodie also moved that the recommendations contained in the address be referred to a special committee of seven; carried. Vice-President Pittman, of North Carolina, appointed the following committee: Drs. William Brodie, of Michigan; S. D. Gross, of Philadelphia; Eugene Grissom, of North Carolina; J. R. Smith, U. S. A.; J. K. Bartlett, of Wisconsin; J. P. White, of New York; J. M. Toner, of the District of Columbia.

Second Day.—Dr. Brodie, of Michigan, chairman of the committee appointed to consider the propositions contained in the address of the President, made the following report:—

Your special committee, to whom was referred the recommendations in the President's annual address, respectfully report that they have had the same under consideration, and recommend as follows:—

1. The Smithsonian plan: It is believed that if the officers of the Sections should perform their duties promptly under the existing regulations there would be no necessity for further examination.

2. In the matter of a standing committee to procure papers on scientific subjects, it is or should be part of the duty of the chairman of the Sections to obtain suitable matter for their respective Sections, at as early a time after their appointment as possible; and it is believed this would effect what the President proposes.

3. On permanent members and representation, we do not think it best at the present time to make or suggest any change in the present plan of organization.

4. On the subject of the union of this Association with the Canada Medical Association, we consider the same impracticable, and are of opinion that the present system of intercourse between the societies by delegates serves to meet the requirement.

5. On the question of the Pharmacopœia, we deem it inexpedient at the present time to take any action in the premises.

A motion to adopt this report was laid upon the table, upon the statement by the President that he wished to make some further statements regarding the subjects involved.

Dr. Squibb, of Brooklyn, read an essay on the "Revision of the U. S. Pharmacopœia." His views on the subject have been already laid before our readers.

Dr. P. G. Robinson, of Missouri, delivered the Address in Medicine.

Dr. James P. White, of Buffalo, delivered the Address in Obstetrics.

The Committee on Nominations was announced.

Third Day.—The Committee on Prize Essay reported that but one essay had been placed in its possession in time to permit of a reasonable examination, and that they do not consider it entitled to the prize. Another was received only a few days before the opening of the present session, and, as they had not been able to examine it, they recommend that the author be permitted to withdraw it and present it at the next meeting. The report was adopted.

The Judicial Council reported in regard to several cases before them of disputes as to representation, recommending in the case of the dispute between the Arkansas State Medical Society and the Arkansas State Medical Association, which was decided in favour of the former last year, that no further action be taken, and that the application for the admission of a delegate from the latter body be refused. They also reported favourably on the admission of delegates from the Branch County Medical Society of Michigan, and against the admission of a delegate from the Hendricks County Medical Society. In the matter of certain charges made by Dr. G. E. Frothingham against the Michigan State Medical Society and against Drs. Foster Pratt, of Kalamazoo, and G. K. Johnson, of Grand Rapids, the Committee reported that the charges had no bearing on the professional character of the defendants, and should therefore be dismissed. All the reports were accepted.

The Committee on Publication presented their report.

The Treasurer reported as follows:—

Under the positive instruction of the Association the prize essay has been published at a cost of some $6000. This unusual outlay, in addition to the annual volume of *Transactions*, leaves the treasury in an exhausted condition, as it has practically given to each member nine dollars in value for five dollars received. In this his last report, after twenty-two years of service, it remains for the Treasurer to thank the Association for its long-continued confidence, and to regret that in leaving the treasury solvent he cannot leave a more abundant surplus.

It was stated that the treasury now contains a balance of $172.72.

Dr. Ezra M. Hunt, of New Jersey, delivered the address in State Medicine and Public Hygiene.

Dr. Squibb concluded his remarks on the Pharmacopœia question by stating that the Association had three courses before it. The whole subject might be laid on the table, and this would be most acceptable to the speaker, who would thus be freed from all further responsibility in regard to a much-disputed question, the discussion of which had already developed much personal feeling. In the second place, they might prepare a plan and offer it to the profession, allowing it to stand upon its merits. And in the third place, they might appoint through the Nominating Committee a committee of three to prepare a report for presentation at the meeting next year. He would be glad to listen to discussion, and suggested that it be confined to a consideration of these three points. He moved, therefore, that the whole subject be laid upon the table.

This method of promoting discussions (a motion to lay on the table being not debatable) did not meet the views of the Association, and was withdrawn.

Dr. Brodie, of Michigan, offered the following resolution:—

Resolved, That a committee of five be appointed by the President, to whom shall be referred the paper of Dr. Squibb, and all the papers on the subject of the Pharmacopœia, with full authority to examine into the whole question as to the propriety of this Association being a factor in whole or in part in its publication, and report at the next annual meeting.

Dr. N. S. Davis, of Illinois, believed that if the Association entered as a factor with any other body in the preparation of a Pharmacopœia it would have to assume whatever of praise or odium attached to that work. While yielding to none in his respect for the Association, he held that they should keep free from incurring pecuniary obligations, from purchasing copyright interests, and contracting entangling alliances. He believed in allowing the convention to do its work, and to send such men to that convention as it could depend on. He favoured the indefinite postponement of the whole matter, and made a motion accordingly.

Dr. Brodie withdrew his resolution. The motion of Dr. Davis was put to a vote, and carried by a large majority. The announcement was greeted with applause.

Dr. S. D. Gross, of Pennsylvania, Chairman of the Committee on Nominations, offered a partial report, and asked a temporary change in the order for the purpose of receiving it. This was granted, and the Secretary read out the following recommendations:—

President.—T. G. Richardson, of Louisiana.

Vice-Presidents. — J. P. White, New York; Moses Gunn, Illinois; G. W. Russell, Connecticut; A. Dunlap, Ohio

Chairman of Section of Medicine, Materia Medica, and Physiology.—A. L. Loomis, New York. *Secretary*, J. H. Etheridge, Illinois.

Chairman of Section of Obstetrics and Diseases of Women and Children.—E. W. Jenks, Michigan. *Secretary*, H. O. Marcy, Massachusetts.

Chairman of Section of Surgery and Anatomy.—H. H. Smith, Pennsylvania. *Secretary*, E. T. Early, Arkansas.

Chairman of Section of Medical Jurisprudence, Chemistry, and Psychology.—W. Kempster, Wisconsin. *Secretary*, E. A. Hildreth, West Virginia.

Chairman of Section of State Medicine and Public Hygiene.—J. L. Cabell, Virginia. *Secretary*, E. J. Marsh, New Jersey.

Next place of meeting, Buffalo, N. Y. Time, first Tuesday in June, 1878.

The report was unanimously adopted.

Fourth Day.—Dr. Lilly, of New Jersey, presented a memorial relating to the revision of the U. S. Pharmacopœia, from the New Jersey State Medical Society.

Dr. T. M. Drysdale, of Pennsylvania, was appointed a delagate to foreign medical societies, and Drs. Clifton E. Wing, of Massachusetts, and Wm. Brodie, of Michigan, to the Canada Medical Association.

The Committee on Nominations presented the following additional report:—

Assistant-Secretary.—Dr. E. N. Brush, of New York.

Committee of Arrangement.—Drs. Thos. F. Rochester, J. F. Miner, E. R. Barnes, C. C. Wyckoff, M. B. Folwell, W. C. Phelps, and E. N. Brush.

Committee of Publication.—Drs. W. B. Atkinson, T. M. Drysdale, A. Fricke, S. D. Gross, C. Wister, R. J. Dunglison, of Pennsylvania, and William Lee, of D. C.

Treasurer.—Dr. R. J. Dunglison, of Penna.

Judicial Council.—Drs. J. K. Bartlett, of Wisconsin; F. Staples, of Minnesota; E. Grissom, of North Carolina; W. S. Robertson, S. Lilly, of New Jersey; W. M. McPheeters, of Missouri; and A. T. Woodward, of Vermont.

Committee on Prize Essays.—Drs. E. M. Moore, T. Lothrop, W. Miner, H. R. Hopkins, and E. W. Dean, of Buffalo.

The report was adopted.

Dr. J. W. Singleton, of Ky., offered the following resolutions, which were adopted:—

Resolved, That whereas it has come to our knowledge that a bill, known as the Morrison Bill, for the discontinuance of the tariff on quinine, is at this time before the Committee of Ways and Means in the Congress of the United States; and, whereas the welfare of a large portion of the people in the Western States and Territories is concerned in the issue of this bill, as well as any movement which will enable them to obtain quinine at a less cost than the enormous prices now paid by the consumer; and, whereas the opposition to this bill set forth by the manufacturers and trade does not represent the desire of those who are engaged in the relief of suffering and want, but ignores entirely the necessities of a large population, many of whom are engaged in cultivating the soil and opening up new resources of wealth to the government in malarial districts; and, whereas principles of justice and humanity alike demand free quinine and an open market for the competition of European manufacturers,

Resolved, That the American Medical Association approve of the passage of the "Morrison bill," for the repeal of the tariff on quinine, and respectfully insist that said bill shall become a law.

On motion of Dr. Henry H. Smith, of Penna., it was

Resolved, That the American Medical Association have heard with regret of the failing health of its former President, Dr. George B. Wood.

Resolved, That the Association respectfully tender him their sympathy in his illness, and desire to record their appreciation of his life-long efforts to advance the highest interests of the Medical Profession.

On motion of Dr. N. S. Davis, of Ill., Dr. Lewis A. Sayre, of New York, was appointed a delegate to the British Medical Association.

On motion of Dr. J. M. Toner, of D. C., it was

Resolved, That Dr. Francis Gurney Smith, who retired from the Chairmanship of the Committee of Publication last year, on account of ill health, after many years' service therein, is entitled to, and is hereby tendered, the sincere thanks of this Association, for the admirable and satisfactory manner in which he so long discharged the arduous and exacting duties of the office.

On motion of Dr. J. F. Hibberd, of Ind., it was

Resolved, That this Association, in view of the retirement from the office of Treasurer of the gentleman who, for twenty-two years, has discharged the responsible and laborious duties of that situation, desires in this manner to express its high appreciation of and full satisfaction with the promptness and completeness with which Caspar Wister has discharged the incumbent obligations of its financial agent for so many years, and hereby tender to him the sincerest thanks of the Association for such long and honourable service.

After discussion of the recommendations contained in the President's Address, it was moved by Dr. J. P. White, of New York, and carried, that these recommendations be referred to a select committee of five, of which Dr. N. S. Davis, of Ill., and Dr. Henry I. Bowditch, of Mass., shall be members, to recommend what legislation may be proper.

Dr. J. J. Woodward, U. S. A., moved that, including this meeting and hereafter, the practice of printing in the Transactions of this Association the so-called verbatim reports of the debates in the Sections be discontinued, and that the reports of the Sections be limited to the papers presented and recommended by the Sections for publication, and such minutes as may be actually read and adopted by each Section during the session of the Association. Adopted.

On motion of Dr. Brodie, of Mich., it was unanimously

Resolved, That the earnest thanks of this Association are hereby tendered to the Committee of Arrangements, for the excellent accommodations furnished at this session, and for the valuable order of business so carefully prepared for the meetings; and also to the citizens of Chicago, particularly Messrs. Pullman, Wirt-Dexter, Crain, Winston, Peabody, Bishop, Drs. R. N. Isham, E. O. F. Roler, and W. H. Ross, and their ladies, for their magnificent and hospitable entertainments; also to those railroads which have granted commutations to the delegates.

Dr. Squibb, of New York, asked permission to withdraw his paper on the Revision of the Pharmacopœia, as it had been read only in part, and he did not wish it to be published unless entire. On motion of Dr. Toner, of D C., permission was granted.

Dr. T. G. Richardson, of La., President-elect, was introduced by Dr. Bowditch, and on assuming the chair, in some well-chosen and graceful remarks tendered his acknowledgments for the high honour conferred upon him by the Association.

Adjourned.

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Association of American Medical Colleges.—The Provisional Association of American Medical Colleges met in Chicago on June 1, and resolved itself into the American Medical College Association. Twenty-four colleges were represented.

The following officers were elected: President, Dr. J. B. Biddle, of Jefferson Med. Coll., Phila.; Vice-President, Dr. N. S. Davis, of Chicago Med. Coll.; Secretary, Dr. Leartus Conner, of Detroit Med. Coll.

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American Ophthalmological Society—The annual meeting of this Society will be held July 26th and 27th, at the Cataract House, Niagara Falls.

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American Dermatological Association.—The first annual meeting of the American Dermatological Association will be held at Niagara Falls on the 4th of September.

The titles of all papers to be read should be forwarded to the secretary, Dr. L. Duncan Bulkley, not later than one month before the first day of the session.

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American Gynæcological Society.—The second annual meeting of this Society was held in Boston on May 30th, 31st, and June 1st, the president, Dr. Fordyce Barker, of New York, in the chair. The meeting was eminently successful; it was largely attended, and a number of interesting papers were read. The following officers were elected for the ensuing year: President, Dr. Ed. R. Peaslee, of New York; Secretary, Dr. Jas. R. Chadwick, of Boston; Treasurer, Dr. Paul F. Mundé, of New York. The next meeting will be held in Philadelphia in September, 1878.

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Connecticut Medical Society.—The eighty-sixth annual meeting of this Society was held at Hartford, May 24 and 25; Dr. A. W. Barrows, President, in the chair. The following officers were elected for the ensuing year: President, Dr. R. Hubbard, of Bridgeport. Vice-President, Dr. C. M. Carleton, of Norwich. Secretary, Dr. C. W. Chamberlain, of Hartford.

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Medical Society of New Jersey.—The one hundred and eleventh annual meeting of this venerable Society was held at Trenton, May 22 and 23. The President, Dr. J. W. Schenck, of Camden, presiding. The following officers were selected for the ensuing year: President, H. R. Baldwin, M.D. Vice-Presidents, Drs. John S. Cook, A. W. Rogers, and A. N. Dougherty. Secretary, Wm. Pierson, Jr. The next meeting will be held at Spring Lake.

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Indiana State Medical Society.—The annual meeting of this Society was held at Indianapolis, May 15th. The following officers were elected for the ensuing year: President, Dr. L. D. Waterman, of Marion County; Vice-President, Dr. N. P. Howard, of Hancock County; Secretary, Dr. G. W. Wollen, of Marion County.

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Illinois State Medical Society.—The twenty-seventh annual meeting of this Society was held at Chicago on May 15, 16, and 17, Dr. T. D. Fitch, of Chicago, President, in the chair. The following office-bearers were elected for the ensuing year: President, Dr. J. L. White, of Bloomington; Vice-Presidents, Drs. E. P. Cook, of Mendota, and B. M. Griffith, of Springfield. The next meeting will be held at Springfield.

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Michigan State Medical Society.—The eleventh annual meeting of this Society was held at Battle Creek, May 9th, Vice-President Foster Pratt in the chair. The following officers were elected for the ensuing year: President, Dr. Foster Pratt; Vice-Presidents, Drs. John B. White, of Saginaw; J. A. McGraw, of Detroit; H. B. Barnes, of Ionia; J. H. Briggs, of Mattewan; Secretary, Dr. G. E. Ranney, of Lansing. The next meeting will be held at Lansing.

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State Medical Society of Arkansas.—The annual meeting of this Society was held on May 1st. The following officers were elected for the ensuing year: President, Dr. A. N. Carrigan, of Hempstead Co.; Vice-Presidents, Dr. Pollard, of Washington, A. A. Horner, of Phillips, Drake McDowell, of Hot Springs, and J. A. Stinson, of Jackson; Secretary, Dr. R. J. Jennings, of Little Rock.

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Medical Society of California. — The seventh annual meeting of this Society was held at San Francisco, on the 18th of April, the President, Dr. W. Fitch Cheney, in the chair. The following officers were elected for the ensuing year: President, Dr. Washington Ayer, of San Francisco; Vice-Presidents, Drs. L. C. Lane, of San Francisco, A. W. Saxe, of Santa Clara, J. M. Briceland, of Shasta, and Thomas Ross, of Tolo; Secretary, Dr. G. G. Tyrrell, of Sacramento. San Francisco was designated as the next place of meeting.

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Medical Society of the State of North Carolina.—The twenty-fourth annual meeting of this Society was held at Salem, May 22d and 23d, Dr. Geo. A. Foote, President, in the chair. The following office-bearers were elected for the following year: President, Dr. R. L. Payne, of Lexington. Vice-Presidents, Drs. F. M. Rountree, of Snow Hill, R. Anderson, of Albemarle, S. P. Flowers, of Mount Olive, L. A. Stith, of Wilson. Secretary, Dr. L. J. Picot, of Murfreesboro'. The next meeting will be held at Greensboro' on the second Tuesday in May, 1878.

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Medical Society of Georgia.—The annual meeting of this body was held at Macon on the 18th of April, Dr. L. D. Ford, presiding. The following officers were elected for the ensuing year: President, Wm. O. Daniel, M.D., of Twiggs; Vice-Presidents, Drs. D. W. Hammond, of Macon, and S. B. Hawkins, of Americus; Secretary, Dr. J. B. Baird, of Atlanta. The next meeting will be held at Atlanta on the third Wednesday in April.

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Jefferson College Hospital.—This new structure, which is situated on Sansom Street, about sixty feet west of the college building, was opened for inspection on 29th of May. The building is bounded on three sides by streets and on the fourth by a private passage-way, and is 107 feet square. The hospital proper is five stories high, with a capacity for 125 beds, and is built in the shape of an L. The amphitheatre occupies the angle, and rises to the level of the third story, thus in no way obstructing the free access of air and light to the wards, which occupy the third and fourth floors, and have windows on both sides and at the end.

The amphitheatre is one-story high and fitted up with circular benches which are so arranged as to afford from all sides an unobstructed view of the lecturer, and has a seating capacity of 600. Immediately over the lecturer's entrance has been placed an excellent bust of the late Dr. George McClellan, the founder of the Jefferson College, presented by Dr. John H. Brinton.

On the first floor of the hospital building proper are the lecturers' private rooms, the general reception room for out-patients, rooms for special clinics, and the pharmacy.

On the second floor are a receiving ward, a ward for septic cases, eye ward, gynæcological ward, and a private operating room, with steward's offices, etc. On the third floor are the two male wards each 15 feet high, the surgical 70×40, and the medical 60×33.

The fourth floor is the counterpart of the third, and its wards are intended for females. On each of these floors are a special diet kitchen, dining-room for convalescents, vapour-bath-room lined with glass, etc. Each ward has two open fireplaces, water-closets, bath-rooms, etc. The fifth story contains handsomely furnished rooms with every convenience for private patients.

The basement contains the kitchen, which is connected with the wards by dumb-waiters, a steam disinfecting chamber, mortuary, etc. All soiled clothes are conveyed through a galvanized iron shute extending from the top of the house to the basement.

The walls are plastered with hard coating; the angles are rounded so as not to hold dust or dirt; and the floors are oiled and waxed.

The staircase is fire-proof, and is built around a well containing the steam elevator which runs from the basement to the top of the building, and is large enough to hold a bed. Electric bells and speaking-tubes connect all parts of the hospital.

The ventilation is threefold: 1st. By windows and doors; 2d by open fires; 3d by double sets of foul air flues arranged alternately near the ceiling and floor, one set communicating downwards with a ventilating stack 104 feet high where an upward current is insured by the heat of the steam boilers. The other set of flues extends upwards to the loft which is fitted up with a ridge, and upward air currents are promoted by steam pipes.

The heating is effected by steam, and fresh air is admitted through registers placed behind the steam coils.

The hospital is a handsome brick building with Ohio sandstone facings; the interior is complete in every particular, and the arrangements reflect credit upon the architect and building committee. We have always considered that for successful medical teaching it is essential to have a hospital in connection with the college, and we congratulate the Jefferson faculty upon the possession of this valuable addition to their educational resources.

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University of Pennsylvania.—At a meeting of the Board of Trustees of the University, held on the 5th of June, two of the vacant chairs in the Medical Department were filled as follows: Dr. John Ashhurst, Jr., was elected Professor of Clinical Surgery, and Dr. Theodore G. Wormley, of Columbus, Ohio, Professor of Chemistry. The Professorship of Physiology was left vacant, and Prof. Tyson was appointed to deliver the course next winter. Prof. Tyson, we are informed, is not a candidate for the chair.

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Catalogue of the Alumni of the Medical Department of the University of Pennsylvania.—The Society of the Alumni have authorized the publication of a complete catalogue of the graduates of the Medical Department of the University. Copies may be obtained by inclosing a subscription of one dollar to the Secretary of the Society, Dr. Horace Y. Evans, N. E. cor. Green and 17th Sts., Philadelphia.

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Dialyzed Iron.—We have received from John Wyeth & Brother, the well-known pharmaceutists of this city, a sample of this new preparation, which is a neutral solution of peroxide of iron in the colloid form, obtained by separating by means of the process of dialysis the hydrochloric acid contained in a soluble oxychloride of iron. The dialyzed iron thus obtained is a concentrated solution of peroxide of iron, of a deep red colour and without styptic or other disagreeable taste, and it is stated that it neither blackens the teeth nor constipates the bowels. It will, no doubt, prove to be a very valuable preparation of iron.

FOREIGN INTELLIGENCE.

Periosteal Surgery in the United States.—In a short editorial with the above heading *The Lancet* (June 2, 1877), says: "We have been favoured with a look at the New Lower Jaw-bone alluded to in our report of the Congress of German surgeons at Berlin, and which we believe to be, if not a unique specimen at any rate the first specimen of the sort seen in Europe. We allude to it with the more pleasure, as the operator, Dr. James R. Wood, Emeritus Professor of Surgery in the Bellevue Hospital Medical College, is entitled to the great praise of having been one of the pioneers of periosteal surgery, which constitutes such a creditable and instructive chapter in the recent history of surgery. This particular operation was performed more than twenty years ago; and the merit of it consists not only in its having been then a new kind of operation, but in the details of the procedure, which had to be thought out for the first time, and which have since become recognized principles.

"It is a great feat of what we are disposed to call physiological surgery to take away a whole bone, and to do it so carefully and with such preservation of the periosteum as to have it entirely reproduced in perfect symmetry and perfectly *in situ.* The new jaw is smaller than the original one, but in other respects, in form and position, it is a wonderfully perfect reproduction. The patient was a girl eighteen years of age, working in a match factory; hence the phosphorous disease of the jaw, leading to necrosis and the necessity for removal. The operation was done by halves, one-half being left for weeks after the removal of the other, so as to steady the parts and determine the proper position of the new jaw, which would otherwise have been dragged down by muscles and caused great deformity. The patient perfectly recovered, and lived three years after. She then died of brain abscess, when the entire skull came into the possession of Dr. Wood. Both he and other operators have frequently repeated these operations with similar success. But the patients are mostly alive, and, as Langenbeck lately said at Berlin, there is not another such specimen in the whole of Europe as the one we now notice."

Extraction of Foreign Bodies from the Œsophagus in Children.—In allusion to a case in which there had been some difficulty in extracting a coin swallowed by a child, Dr. Thouvenin states that in such cases he adopts a very simple measure with great success. It consists in laying the child flat on his belly on a table, with his head, supported by an assistant, projecting beyond it. The finger is then introduced into the mouth in order to depress the tongue, and the coin slides out along the finger of the operator.—*Med. Times and Gaz.*, April 14, 1877, from *Bull. de Thérap.*, March 15.

Subcutaneous Injection of Salicylic Acid in Erysipelas.—Prof. Ferdinand Petersen, of Kiel, states, in a postscript to a communication of his in the *Deutsche Medicinische Wochenschrift* for January 13th, 1876, that he has on three occasions cut short the progress of erysipelas by injecting a gramme (about 15 minims) of a concentrated solution salicylic acid under the healthy skin surrounding the affected part. He has made several such injections at the same time in each of the three cases. Whether the happy result was due to the means employed, he will not dogmatically decide. It might be worth trying in other cases of erysipelas.—*Lond. Med. Record*, May 15, 1877.

Oxide of Zinc in Obstinate Diarrhœa.—Dr. Bonamy, of Nantes, relates (*Bull. de Thérap.*, March 30) some cases confirmatory of the great and speedy utility of oxide of zinc in obstinate diarrhœa that has resisted various other remedies. He employs the formula recommended by Prof. Gubler, who first used the remedy for this purpose, viz., three grammes and a half (fifty-three grains) of the oxide, combined with half a gramme (eight grains) of bicarbonate of soda, and divided into three or four doses—one to be taken every three hours. The addition of the soda prevents the production of vomiting by the zinc.—*Med. Times and Gaz.*, May 5, 1877.

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Death while under Ether at the London Hospital.—An old man, sixty-nine years of age, was admitted into the London Hospital on May 12, suffering with obstruction of the bowels. He appeared old, even for his age. He was in considerable pain, which was referred chiefly to the right iliac region, and there was some tenderness also in the same place, as well as over the rest of the abdomen, which was distended and tense. It appeared from the history that the symptoms dated from two days previously; he was the subject of hernia, which came down from time to time, although he wore a truss. Two days before, his hernia being down, he reduced it, the reduction causing pain. He had been sick previous to the reduction, and the vomiting and pain prevailed afterwards. The surgeon to the case diagnosed a reduction *en masse*, both from the history and also the appearance of a depression in the integument over the external ring; and it was thought that some portion of an old sac, which was adherent to this integument, had been reduced, and was dragging upon the integument, and so giving rise to the depression or dimpling of the soft parts. With a view to get the hernia down, and to obviate the struggling which the pain of this process gave rise to, ether was administered. Clover's inhaler was used. For about thirty seconds he inspired only his expired air; he then had, for about a minute, one-quarter to a half ether. There was some struggling at the commencement, and he did not breathe in the ether well. The mouthpiece was therefore frequently removed from his face. The amount of ether was then diminished, and as his lips looked blue it was entirely stopped; his breathing improved a little, but was not quite satisfactory. His pulse gradually became weaker, and finally stopped; respiration, however, continuing for thirty seconds or more. Sylvester's method of artificial respiration and galvanism were resorted to without success. The post-mortem examination showed that a large coil of small intestine had got caught in a figure-of-eight-shaped loop of mesentery adherent by both ends to peritoneum under the above-mentioned pouch. The intestine was very much inflamed, and of a deep purple colour. Left ventricle uncontracted and flaccid. Lungs: Extreme emphysema, and containing little blood. Slight bronchitis. It would seem as though the man died more of shock than of ether. The jury also held this view, and returned, "Death from natural causes."—*Med. Times and Gaz.*, May 19, 1877.

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Professor Lister.—The council of King's College, London, in order to have the benefit of Mr. Lister's teaching, have created a second chair of clinical surgery, which has been offered to him, and he has accepted. As Mr. Lister's antiseptic surgical practice requires that the patients so treated shall be kept separate from those who are not, the authorities of the hospital have placed two wards—one for female and one for male patients—at Mr. Lister's disposal.

It is reported that Mr. P. Heron Watson is likely to become a candidate for the chair of Clinical Surgery in the University of Edinburgh, vacated by Mr. Lister.

—

The University of London and Medical Women.—At a very large meeting of convocation of the University of London, held in May last, it was resolved "That this house is of opinion that it is undesirable for this University to admit women to degrees in medicine before it shall have considered the advisability of admitting women to degrees in all faculties." The resolution was supported by Mr. Savory, Dr. Barnes, Dr. Quain, Sir William Jenner, Dr. Wilks, Dr. Wilson Fox, Dr. Poore, and others, and no one possessing a medical degree appears to have opposed it.

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Any one who wants a good, clear, condensed work upon Practice, quite up with the most recent views in pathology, will find this a most valuable work. The additions made by Dr. Hutchinson are appropriate and useful, and so well done that we wish there were more of them. —*Am. Practitioner*, Feb. 1877.

This portly volume is a marvel of condensation. In a style at once clear, interesting, and concise, Dr. Bristowe passes in review every conceivable subject connected with the practice of medicine. Those practitioners who purchase few books will find this a most opportune publication, because so many topics not usually embraced in a work on practice are adequately handled. The book is a thoroughly good one, and its usefulness to American readers has been increased by the judicious notes of the Editor.—*Cincinnati Clinic*, Jan. 7, 1877.

The is undoubtedly the best of the single volume text-books on practice of medicine published or republished in this country for the past eight or ten years. Its shortcomings are few.—*Va. Med. Monthly*, Jan 1877.

While he has done what he really intended to do, viz., presented every subject with all possible conciseness and brevity, there is nothing to warrant the conclusion that such a result is due to any want of that thorough preparation and knowledge requisite in a work of greater amplitude and pretension. Indeed, the experienced and candid reader will testify that there are no real evidences of the fact that this work is adapted only to the wants of junior practitioners and students; on the contrary, while the style is concise, it is polished, and conveys, as a rule, what would be demanded by the most experienced practitioners; while the number and variety of subjects discussed is really astonishing. It is a most excellent volume, and will be fully prized by all who possess a copy of it. The American editor has really improved the volume by his additions to it, and deserves warm commendation for his faithful and efficient labors. We have no general works on the practice of medicine that, in many respects, are so fully up to the results of modern researches.—*Journ. of Mental and Nervous Diseases*, Jan. 1877.

The above is an entirely new work on the practice of medicine. From the widely known and well-earned reputation of the author, this work is entitled to the highest consideration. It is eminently practical, and contains the most recent views on the pathology and treatment of diseased conditions. We cannot commend it too highly. —*Canada Lancet*, Jan. 1, 1877.

Upon reading it our first emotion was that of surprise—surprise mingled with pleasure, to perceive that, notwithstanding the same work had been done by so many, it could yet be done so much better. In 1056 pages the author has compressed the most complete treatise upon the theory and practice of medicine we have ever seen. Almost every disease known to the profession, including many not found in similar works, is treated of. As a handbook for students, therefore, we do not think it has an equal in the English language; while older members of the profession may consult it with equal pleasure and profit. The style is remarkably clear, plain, and familiar, and is perfectly comprehensible to the least cultivated; while the most highly cultured can hardly fail to be pleased at the purity of its English.—*Physician and Surgeon*, Baltimore, Nov. 1876.

It is impossible to look over its pages without being impressed with the amount of information which they have been made to contain, with no appearance of conciseness at the expense of completeness. A superficial survey even shows that, as a text-book, it is far in advance of those published only a few years ago; and a more careful examination of some of its sections—such, for example, as the one devoted to diseases of the nervous system—demonstrates that in provinces which have accomplished the greatest advances of late years, the author has kept his work quite abreast with the labors of the most reliable clinical observers. Features quite unusual in a purely medical treatise are included in the shape of excellent chapters on diseases of the skin, the affections of the genito-urinary organs in females, which can but result in lessening the tendency on the part of the general practitioner to neglect the important classes of complaints with the feeling that, like derangements of the chief organs of the special senses, they can better be managed by specialists.—*New Remedies*, Nov. 1876.

We recommend highly this book, and feel justified in doing so by the thought that, of its class it is the best we have yet seen. The judicious remarks of the American editor add very much to the value of the work. His jealous guard over American medicine is most praiseworthy: in fact, our only complaint is that so little of his own well-known style appears.—*Obstet. Journ. of Great Britain and Ireland*, Nov. 1876.

The work under consideration is, in many respects, a most admirable text-book. There is no pretence to encyclopædic completeness, but what the student wants, a short, compendious remembrancer, he will find in Bristowe's Practice. We regard the work as especially valuable to the student who wishes to classify, systematize, and remember the points of value made by his teachers, and to the busy practitioner who would review his knowledge of affections, and look for suggestions in the emergencies which continually arise in his daily life. The editor has done his work with conscientious care, and the American reader will find that the additions to medical science made by his countrymen have not been overlooked. Altogether, it is an excellent work, and will doubtless have a large sale.—*St. Louis Med. Record*, March, 1877.

The style is clear, the matter and method good. Whoever buys this book gets as complete a representation of modern medicine as has been, and probably can be put inside of one thousand pages of similar size and type.—*Phila. Med. Times*, Dec. 9, 1876.

HENRY C. LEA, Philadelphia.

THE MEDICAL NEWS AND LIBRARY.

VOL. XXXV. AUGUST, 1877. No. 416.

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CLINICS.

CLINICAL LECTURES.

A Clinical Lecture on Ovariotomy. Delivered in University College Hospital, London. By CHRISTOPHER HEATH, F.R.C.S., Holme Professor of Clinical Surgery, etc.

Gentlemen: You have recently had under your notice a case of multilocular ovarian cyst, and have had the opportunity of seeing me remove it by the operation of ovariotomy, with, I am happy to say, complete success; and I propose now to make a few clinical remarks upon the subject. The patient was a married woman aged 29, and the mother of four children. In 1873, after a confinement, she noticed that her abdomen remained large. She was confined again in July, 1874, the enlargement still persisting, and she wore an abdominal belt for nine months. In the early part of 1876, she noticed a hard lump in the abdomen, and applied for advice at a special hospital, when she was told that she had a fibrous tumour of the uterus, and attended for some months without benefit. She was recommended to me by a medical friend, and was admitted here on December 2, 1876, when the following was her condition, as reported by Mr. Smyth, the clinical clerk:—

The abdomen is greatly distended and of conical shape, the apex being midway between the umbilicus and pubes. There

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is dulness over the front and sides of the belly, reaching three inches from the umbilicus on the right side, and almost to the flank on the left side, with tympanitic percussion above and to the sides of the dull area. The surface of the tumour, as a whole, is rounded, several sulci marking off distinct rounded portions; these are very tense and fluctuating, but there is no fluctuation from side to side of the whole tumour. Just to the right of the umbilicus, a flat and very hard lump is felt, about the size of an almond in its shell. The abdominal wall is marked with purple lines from stretching; it is thin and freely movable over the tumour. *Per vaginam*, the uterus was found to be normal in size, but pushed over the left side; to the right and in front of it, rounded masses were to be felt through the vaginal wall.

Now, I beg you will understand that the diagnosis of abdominal tumours, presumably ovarian, is by no means easy, and that the most experienced ovariotomists are liable to mistakes. Thus, tumours of the uterus have been confounded with ovarian tumours, and, *vice versâ*, cysts of the kidney and liver and enlarged spleens have all been taken for ovarian tumours; and, in fact, in many cases the late Mr. Baker Brown's *dictum* is undoubtedly true, that one cannot be certain about the nature of a given tumour until one's hand is actually upon it. Still, this was a remarkably easy case for diagnosis; the thin abdominal wall allowed the multiple cysts to be very distinctly felt, and the only unsolved question was whether the dulness in the left flank was due to some solid matter, or, as it proved, to tightly packed cysts with viscid contents. Under these circumstances, a preliminary tapping could have been of no service, as it sometimes is in cases complicated with considerable ascites by which the tumour is obscured, or cases of one very large cyst, possibly in the broad ligament, where a single tapping will often cure the case altogether.

I, therefore, recommended the patient to undergo the operation of ovariotomy, putting the risks fairly before her and her husband; and, upon her assenting, had her transferred, with Dr. Graily Hewitt's kind consent, to the house close by, which is devoted to the treatment of such cases under his care. My reason for doing this was that undoubtedly cases of ovariotomy do not do well in the general wards of a hospital, and that the only single ward at my disposal is at the top of the general staircase, and liable, therefore, to have noxious matters carried into it from below. I do not believe that the patient would have sustained any harm whatever if I had operated in this theatre, provided she could have been placed in an isolated bed afterwards; but, this being practically impossible in our present building, you had to follow the patient over the way to witness the operation. Now, the operation was done on a Thursday; and, on the previous day, I had made my visit here as usual, and the only restriction I put upon those who attended the operation was that they should not be in actual attendance upon cases of contagious disease. I learn from a paragraph in an American journal, that an eminent ovariotomist requires all who witness his public operations to sign a paper certifying that they have not seen a dead body or an infectious living case for seven days; but such a sweeping precaution, even if it can really be enforced, seems to me uncalled for, when the operator must, in the ordinary course of practice, be daily placing his fingers in contact with discharges from the uterus quite as offensive, and probably as dangerous, as anything met with even in a post-mortem examination. I do not think any one would be justified in making a post-mortem examination or going to an infectious case just before an ovariotomy; but I have great faith in a night's rest and a morning bath for removing all taint from the living body. Were it otherwise, indeed, I do not see how any one could practise his profession with safety, and the effect of such a regulation as that given above would be to confine ovariotomy to a very select circle of operators.

The operation was performed on December 6, the patient being under the influence of ether. I made an incision exactly in the middle line, three inches and a half long, beginning about midway between the umbilicus and pubes, and carrying it down towards the pubes. Having opened the peritoneum, I divided it to the same extent on a director, and the bluish cystic tumour at once came into view, there being no ascitic fluid. I then passed my hand in to make sure that there were no adhesions, and afterwards tapped the presenting cyst with a large trocar. Through this cyst, I tapped other cysts, but was unable to reach the large cysts in the left flank; and, therefore, having drawn the empty cysts forward, I tapped at a fresh spot. Having emptied two or three cysts through this opening, I was then able to draw the entire tumour out; Dr. Williams, who assisted me, carefully guarding against any prolapse of the intestines. The fluid of these cysts was thin and ran readily through the canula; but not unfrequently one meets with such dense cyst-contents that it is necessary to scoop them out with the fingers, the aperture in the cyst being enlarged with scissors so as to admit the hand, and the greatest care being exercised to prevent any escape of the contents into the peritoneum. The only adhesions were two of the omentum to the tumour, and these I tore through, afterwards putting fine silk sutures upon a couple of bleeding vessels.

Next came the important question of the treatment of the pedicle. Having tried all the modern plans, I gave the preference to that of "tying and dropping;" *i. e.*, I tied the pedicle with silk and cut the ligatures short, so that I might close the wound completely. In doing this, it is important that there should be no risk of the ligatures slipping, and the best way is to use a double ligature, passing it through the pedicle with a probe, and then tying the two halves separately; and then, as an extra precaution, one of the ligatures is made to encircle the entire pedicle again on the uterine side of the other ligatures. I then divided the pedicle half an inch beyond the ligatures, and removed the tumour, which weighed three pounds and three-quarters after the removal of five pints of fluid by the tappings. The tumour involved the left ovary; and I proceeded to examine the opposite one, and, finding cystic disease commencing there, I removed it with the same precautions. The edges of the incision were brought together with five silk sutures, which were passed deeply through the entire thickness of the abdominal wall, including the peritoneum. Mr. Spencer Wells settled the question of including the peritoneum by experiments on animals (the specimens from which are in the College of Surgeons' Museum), and showed that, if the edges of the peritoneum were brought together, they united rapidly by lymph, and thus effectually closed the peritoneal cavity again and prevented the access of inflammatory products. The same rule would hold good in cases of accidental wound of the peritoneum. No superficial sutures were used, but the abdomen was padded with cotton-wool and carefully strapped with plaster, so as to give support to the abdominal wall and contents, and thus to obviate vomiting to a great extent.

I need not trouble you with the details of the after-treatment, which consisted simply in careful nursing, a dose or two of morphia to relieve pain, a simple injection on the fourth day, and a dose of castor oil on the fifth day. The sutures (one of which set up a little suppuration) were removed on the seventh day after the operation; and the patient went home on December 23, seventeen days after the operation, in order to spend Christmas with her family.

Although ovariotomy was first performed in 1809 by McDowell, of Kentucky, who was a pupil of John Bell, the operation in modern times has been entirely of British cultivation. Mr. Lizars, of Edinburgh, was the first to attempt ovariotomy in this country, and by the long incision, *i. e.*, from the umbilicus to the pubes; his example was followed by a few other surgeons, and from time to time a success was recorded. The short incision, with withdrawal of the contents of the cyst, was adopted in 1836 by Mr. Jeaffreson, of Framlingham, but the pedicle and ligatures were still allowed to hang out of the wound, and to set up suppuration in the peritoneal cavity. The late Mr. Duffin, in 1850, first called attention to this danger, and proposed to keep the strangulated pedicle outside the peritoneum; and this method was improved upon in 1858 by Mr. Jonathan Hutchinson, who devised the clamp now in common use in some form. Mr. Spencer Wells, who has had the largest experience of any ovariotomist, had his first case in 1858; and since that time the operation has been performed by numerous surgeons, both in this and other countries, and is now a thoroughly established proceeding. My own experience has been comparatively small; the case you have seen being only my fifteenth; but the mortality has been small also, viz., three deaths, or one in five cases—this being, I believe, about the rate in Mr. Wells's much larger number of cases. One of my deaths was accidental, *i. e.*, it resulted from slipping of the clamp some hours after the operation, when internal hemorrhage occurred before the pedicle could be secured. On the other hand, I have never had occasion to abandon an operation, though one or two cases have been rather desperate ones, one case having been already attempted by another operator, who gave up and closed the wound successfully; and others having been already declined on account of adhesions. In the first of these, the parts were so matted together that I unawares divided a coil of small intestine; but, by making an artificial anus, the patient recovered, and is now in perfect health, with only a small fecal fistula, which gives her no inconvenience. (The case is recorded in the Clinical Society's *Transactions*, vol. v.)

The method of treating the pedicle I adopted in this case, viz., "tying and dropping," was brought into practice by the late Dr. Tyler Smith, who had a series of most successful cases, and it appears to me to possess two great advantages: 1. That it is applicable to all pedicles, whether long or short; and, 2. That it admits of immediate closure of the wound in its whole length. My personal experience of the clamp is limited to the case already mentioned, in which a fatal result ensued from the slipping of the pedicle through the clamp, for I never again employed it; but I have seen it used frequently, and it does very well when the pedicle is long. But in many cases the pedicle is so short that very considerable traction upon the uterus is exercised in order to get the clamp outside the abdominal wall, thereby causing pain. Another objection is that the stump sometimes gives trouble if it become adherent to the cicatrix, a regular menstrual discharge taking place occasionally every month. Still, it is right that you should know that Mr. Wells has employed the clamp in the greater number of his cases. Mr. Baker Brown introduced the practice of dividing the pedicle with the actual cautery, and devised a cautery-clamp, which I show you here. I have employed it in several of my cases with good effect, but I do not think it so safe as the ligature; for, however careful you may be to cut the pedicle slowly with an iron not too hot, so as to sear the cut edges thoroughly, there is always the risk of some small vessel bleeding and requiring a ligature, and sometimes the burnt edges become separated and the bleeding is free. It is exactly the difference between applying torsion to a large artery and putting on a ligature; with the last, one feels perfectly safe, whilst with the former something *may* go wrong.

You may ask what becomes of the ligatures left in the abdomen. They become rapidly coated with lymph and buried completely, so that it is impossible to find them a few months afterwards. Possibly silk, being an animal product, may undergo partial absorption, as has been suggested; but twine ligatures do practically just as well, and are as completely hidden.—*British Med. Journ.*, June 16, 1877.

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Case of Suspected "Discharging Lesions" of the Hinder Part of the Uppermost Right Frontal Convolution; Illustration of Ferrier's Researches.—During his charge of the clinical wards at the London Hospital, Dr. Hughlings Jackson showed several patients who were subject to convulsions beginning locally, in some part of one side of the body. With reference to them he urged the great importance of the researches of Hitzig and Ferrier, and drew attention to the statement of Charcot that a French physician, Bravais, had, in 1827, described the clinical varieties of epilepsy or of epileptiform seizures under remark. One case was that of a man who had convulsions usually affecting only the left arm; the convulsion was always preceded by an epigastric sensation, probably the same as, or one allied to the strange epigastric feeling so often mentioned by patients the subjects of what is usually called "genuine" epilepsy as a warning of their seizures. Besides the limitation of nearly all the seizures to the arm, there was another very noteworthy peculiarity; according to the patient, the spasm always passed *down* the arm. This is a credible thing; Dr. Hughlings Jackson has witnessed such a mode of spreading of spasm in a woman who had very numerous convulsions limited to the right arm. In that woman's case a gliomatous tumour was found affecting the hindermost part of the uppermost frontal convolution, and slightly involving the upper end of the ascending frontal of the side opposite the arm convulsed. The position of disease in this woman's case was correctly predicted, from there having been discovered disease of the part named in another case previously under Dr. Hughlings Jackson's care, in which case also the convulsion had been limited to the arm. This was before Ferrier began his important researches; but it is to be observed that this "localization by disease" closely agrees with one of his conclusions. Thus, at p. 306 of his recently published "Functions of the Brain," Ferrier writes, when describing a plate of the brain wherein the motor centres are indicated: "(5) Situated at the posterior extremity of the superior frontal convolution, at its junction with the ascending frontal, is the centre for the extension forwards of the arm and hand, as in putting forth the hand to touch something in front."

Considering this woman's case, another essentially similar case also alluded to above, and some facts of a case less conclusive, and more especially the very definite results of Ferrier's experiments, Dr. Hughlings Jackson ventures, in the case of the man recently in the clinical wards, on the diagnosis of a "discharging lesion" of the hindermost part of the right uppermost frontal convolution. Dr. Ferrier saw this patient with Dr. Hughlings Jackson, and agreed with him in the above diagnosis.

This patient has a very curious feeling in his paroxysms, which Dr. Hughlings Jackson has never before heard of in a case of convulsion of any kind. The patient said that during the fit his hand seemed to get gradually up to his shoulder, and at length seemed to be buried in his chest. This is worthy of mention, on account of the somewhat similar feeling of some of those who have undergone amputation of a limb; the "spectral" hand or foot, in course of months or years, gets gradually nearer and nearer to the shoulder or hip.

What kind of disease there may be which is the cause of the "discharging lesion," Dr. Hughlings Jackson does not venture to say; there is no evidence of tumour, unless the limitation of the spasm is some empirical evidence of it.

Remarks on discharging lesions, by Dr. HUGHLINGS JACKSON.—A "discharging lesion" is an abnormal physiological state; there is local instability of gray matter. The difficulty here, as in most cases of epilepsy and epileptiform seizures, is to ascertain the pathology—that is to say, the nature of the local abnormal nutritive process by which the local instability results.

Dr. Hughlings Jackson continually insists on the necessity of making a distinction between the abnormal physiological condition (the morbid alteration of the function of nerve-tissue) and the abnormal nutritive process (pathology) by which the abnormal physiological condition is brought about. The term "disease" is frequently used for both or either; no analysis being attempted. The distinction is most easily shown in cases of paralysis. Paralysis points only to the abnormal physiological condition of loss of function of nerve-tissue, and often to actual destruction of nerve-tissue; it tells us nothing whatever as to the nature of the pathological process by which that loss of function results. Similarly, convulsion (as also choreal movements, tetanus, etc.) points only to the abnormal physiological condition of over-function (not better function), or, in other words, to a "discharging lesion," constituted by unstable cells, but convulsion tells us nothing as to the pathological process by which that condition of over-function results. It will be observed that Dr. Hughlings Jackson uses the term "functional" simply to describe what is commonly agreed upon to be the function of nerve-tissue, and not for slightness of charge, nor for cases in which recovery quickly follows; there are, in this sense of the word, only two kinds of functional changes —those of loss of function and those of over-function. Speaking now only of over-function from morbidly increased instability of nerve-cells, we must go so far as to say that there is increased nutrition; for increased expenditure of energy of necessity implies increased "absorption" of energy—that is, increase of the nutritive process. The difficult question is: "How is this local increase of nutrition determined?" Even when we discover a tumour we have this problem to consider. A tumour is found, let us say, in the uppermost frontal convolution, close upon the ascending frontal; there were frequent convulsions of the opposite arm during life. Now the tumour cannot discharge; the discharge is of gray matter, and, as Dr. Hughlings Jackson supposes, of gray matter round about the tumour. But whether this be so, or whether the discharge be, as many would believe, of the medulla oblongata, the difficult question is: By what process did the tumour lead to instability of cells permitting occasional excessive discharge, be those unstable cells where they may?

Thanks to Hitzig and Ferrier's researches, the locality of "discharging lesions" is, Dr. Hughlings Jackson thinks, a matter on which physicians have been wonderfully and unexpectedly assisted. But a great void remains to be filled with regard to the pathological process by which discharging lesions result. But even here it is probable that Ferrier's researches will help us. For particular pathological processes affect, so to speak, particular seats. And in this regard the researches of Duret on the distribution of cerebral arteries ought to be very carefully considered. Dr. Hughlings Jackson's speculation is, that in most cases where there is found no tumour as a cause of convulsion, the "discharging lesion" is the result of embolism or thrombosis of arteries.—*Lancet*, June 16, 1877.

HOSPITAL NOTES AND GLEANINGS.

Hospital Notes. Guy's Hospital (Dr. Moxon).

Spinal Sclerosis.—A tradesman's clerk, aged 21, with red hair and fairly intelligent appearance, complains of unevenness of gait in walking and difficulty in speaking. He has suffered from these paralytic symptoms during the last seven years. His speech is defective, he is slow in getting out his words and in forming the sounds, but he speaks without any want of intelligence. The movements of the tongue in the mouth present no abnormalities to the eye, and the power of the labio-glossal muscles, as indicated by the power to blow out a candle at a distance, presents no defect. In walking, the body swaggers; there is ataxia, but not complete "locomotor ataxia." In standing, the feet are widely separated, he cannot stand with his eyes shut, and says to attempt to do so makes him giddy. There is no muscular tremor, such as is seen in lateral spinal sclerosis. He has no difficulty in urinating. The eyes present no abnormalities in movement or ophthalmoscopic appearance. There are no dysæsthetic sensations of "girthing," etc., and no numbness. An elder brother is said to be similarly affected in a greater degree; another brother, aged 17, was seen; he usually stands with feet separated, and is unable to do so with his eyes shut; his gait is defective, but not so much so as the patient's. A sister is also said to be ataxic. There is no blood-relationship between the parents. There is here an absence of all cerebral symptoms; probably there is sclerosis confined to the spinal cord, and most probably in the posterior column. The prognosis of ordinary spinal sclerosis is, however, hardly warranted here. The treatment consists of tonics and cod-liver oil.

Cervical Chorea, or Muscular Tic.—An elderly man presented a curious lateral oscillation of the head and neck, but no general paralysis agitans; he also complained of want of sleep. This has been his condition for three years. Dr. Radcliffe's method of hypodermic injection of arsenic was tried, five minims of liquor arsenicalis being injected in the neck. This produced no good effect; and troublesome local boils and suppurating sores resulted, which have been healed with difficulty. This plan Dr. Moxon has tried in three similar cases, in all with a like unsatisfactory result, and now considers the plan useless and unsafe. Bromide of potassium has much benefited the patient; the muscular movement is less, and sleep is now good.

Partial Paralysis of the Legs.—A middle-aged man complains of tight girthing around the loins, and he walks with difficulty, the muscular power of the legs being much diminished. He has been the subject of progressive muscular atrophy in one arm for two years, indicating long-standing changes in the cord. Just before admission, he was thrown from a cart and alighted on his head; the weakness of the legs followed. He has no difficulty in micturition now, though the history shows he had incontinence at first. This fact would be thought by some to be incompatible with genuine paralysis, were he appealing to a jury "for damages in a railway case." It appears, however, that the paralysis of the legs has resulted from the accident, and there is no reason to suspect malingering.

Epilepsy.—A girl, aged 14, has been liable for several years to bouts of epileptic fits, and for such was admitted. An ice-bag to the spine was first used, but without effect. She was then put on bromide of potassium, half a drachm three times a day, without relief; the dose was then raised to one drachm three times a day, and the fits ceased. They have not returned on subsequently reducing the dose.

Pleurisy.—On the physical diagnosis of the effusion, Dr. Moxon remarked that the tactile vocal fremitus is an uncertain guide; it may partially persist with effusion; it may be absent from other causes. Effusion in the left pleural cavity may easily displace the heart towards the median line; but when on the right side, a much larger effusion is necessary to push over the heart, although, on the contraction resulting from subsequent absorption, displacement is greatest in right-sided pleurisy. If, with effusion, the temperature remain above 102° or 103° Fahr. for some days, it is generally purulent. In cases of phthisical consolidation of an apex, there may be pleuritic effusion, which subsequently becomes absorbed and closes up.

Cardiac Jaundice.—A man, aged 21, presents the signs of tricuspid regurgitation. The liver is pulsatile, heaving and pulsating in the epigastrium synchronously with the ventricular systole. He is moderately jaundiced, and *the stools present an excess of bile*, which seems to indicate excessive secretion. Were the jaundice due to catarrh or œdema of the ducts, or to inspissation of bile resulting from defective hepatic circulation, no such excess of bile would appear in the stools. The same thing has been observed in a few other cases.

Typhoid Fever.—A man, aged 20, was admitted in the second week of an irregular attack of continued fever. He had no rash; the temperature oscillated irregularly from 99° to 103° Fahr., generally higher in the morning. During the fourth week of his illness, the fever subsided and the patient began to convalesce. Solid food was now allowed, and shortly afterwards the patient relapsed, with a typhoid rash on the abdomen (which was absent in the primary attack), diarrhœa, furred tongue, and slight bleeding from the nose. The temperature was again highest in the morning, reaching 103° Fahr.; this gradually came down the second week of the relapse. The first attack was not characteristic of typhoid; the relapse was completely characteristic. This favors the doctrine of the possibility of the generation of typhoid *de novo*. A sort of incubation during the first illness seems to have perfected the poison, which was thus able to develop a regular form of the disease in the relapse.

GUY'S HOSPITAL: OUT-PATIENTS (MR. DAVIES COLLEY).

Cyst of the Upper Jaw.—A man, twenty-four years of age, presented a fluctuating swelling of the size of a walnut on the right side of the face half an inch below the orbit. In the mouth, the tumour projected along the outer margin of the gum; it was fluctuating and not painful. This had been noticed during the last two and a half years, and had been lanced twice, when "stuff like coffee-grounds" is said to have been evacuated, but the wound was not kept open. Adjacent to the tumour was a carious bicuspid which had not been tender, but the man had some face-ache three years ago, *i. e.*, before the formation of the cyst. The canine tooth was absent on this side, the lateral incisor being in contact with the bicuspid, and there was no history of its extraction; possibly then the cyst may be dentigerous. There was no discharge from the nose or other sign of disease of the antrum. A seton was then passed through the cyst from the mouth by means of a curved needle, and a clear slightly yellow mucoid fluid was evacuated. A crater of bone was then felt surrounding the cyst at its base. Probably the adjacent carious tooth will have to be extracted. A radical measure would be to lay the cyst freely open and stuff it with lint. A finger in the cyst would enable the diagnosis to be confirmed.

A young woman came under treatment a month ago with a mucous cyst of the upper jaw of two or three years' growth, producing considerable deformity. It had previously been lanced two or three times. A seton was inserted and tied in; clear mucoid matter exuded, suppuration followed; a carious tooth adjacent was then extracted. The patient is now free of all trouble but a depression in the maxillary bone.

Polypus growing from the Septum of the Nose.—A girl, aged 15, had been troubled with obstruction of left nostril and epistaxis for four months. This was found to be due to a pedunculated polypus growing from the septum. In January it was removed under chloroform, and now there is no sign of disease. Polypus growing from the septum is very rare; this one measured a little over half an inch by one-third; it was very vascular, and ulcerated on the surface. Structurally it consisted of a large number of vessels and adenoid tissue, with many lymph cells.

Nævus.—An infant presented a nævus in the centre of the upper lip. A month ago this was injected with pure carbolic acid (liquefied by heat). At present the surface is slightly irregular, in a few places too vascular, and these points may have to be touched with the actual cautery. The nævus, however, is cured, and that without scar or irregularity in the outline of the lip. Mr. Davies Colley usually excises nævi, especially those occurring in parts where the skin is loose, as on the trunk; the margins of the wound then come well together and direct union usually follows; on the lip, however, this would produce a deformity.

A Ganglion of the Wrist had been three times dispersed by pressure, and had reformed. A fortnight ago, it was laid open under carbolic spray, and stuffed with carbolic gauze to excite a little inflammation. This had been removed within four days, and no suppuration followed. The wound is healed and the ganglion apparently cured. Mr. Davies Colley has treated many cases thus without any ill results; but usually the gauze is left in one to two weeks.

Primary Chancre on the Lip.—A young woman had, in some inexplicable manner, contracted a hard chancre on the lower lip. It presented an indurated base, with thickening of the whole lip. There were mucous tubercles adjacent to the primary sore, also superficial ulcers on the tongue and tonsils. No cutaneous rash had followed, perhaps because the patient had been treated with mercury from the first. A similar case of primary chancre on the lip gave a history of having "been scratched by a cat."

Excision of the Hip-joint.—A child whose hip was excised eighteen months ago was carried into the room, with an extension splint *in situ.* The apparatus used was a modification of De Morgan's arrangement, consisting of a lateral splint on each side of the body, interrupted at the hip, the two splints being firmly connected by iron bars passing under the body. The splints were strapped to the body, and loosely bandaged to either leg. Extension was then made by a cord attached to the foot, passing over a pulley at the end of the splint to a spring at its outer side.

Necrosis of the Superior Maxilla, following Smallpox.—A girl, six years old, contracted smallpox three months ago. A month from the onset, two teeth fell out and the breath became foul. About an inch of the alveolar process necrosed, became exposed, and was taken away with the greatest ease. Such a form of necrosis may follow after exanthemata.—*British Med. Journ.*, June 30, 1877.

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Cases of Spina Bifida treated with Iodo-Glycerine Injection.—At a recent meeting of the Liverpool Medical Institution (*Brit. Med. Journ.*, June 30, 1877), Dr. Cormack read the notes of two cases of this affection treated by him at the North Dispensary. The first case occurred in an infant brought to him twelve hours after birth. The child had been a breech-presentation, and the tumour, being mistaken for the bag of membranes, had been ruptured by the midwife in attendance. Leakage was going on when seen by Dr. Cormack, who sealed the opening with a lint-pad and tincture of benzoin. Four days later, the opening closed and the swelling having increased, the tumour was tapped, but only a portion of its contents (two drachms) was withdrawn, and a drachm of iodo-glycerine solution injected (linimenti iodi ʒj; glycerini ℥iij). The opening was sealed, and the whole of the tumour painted over with collodion; after which a pad and bandage were applied. For eight hours afterwards, the child appeared drowsy, vomited a little, and refused the breast. Next day, it appeared well; the tumour was somewhat collapsed towards its centre. On the third day, the swelling was more diminished; the child seemed well, but had occasional twitchings of the muscles of the spine and upper extremities. After this, steady recovery ensued; dressings of lint and tincture of benzoin were used for ten days, and afterwards benzoated zinc ointment. A fortnight after the operation, the swelling had disappeared, and a mere fissure which leaked slightly was left; and, three weeks later, this closed, and the child was dismissed cured. The second patient was brought to Dr. Cormack forty-eight hours after birth; but here there was complete loss of power in the lower extremities. The tumour was situated in the lumbo-sacral region, and the integument at the centre was so thin as to be transparent. It was tapped at its base, half a drachm of straw-coloured serum was drawn off, and half a drachm of iodo-glycerine solution injected (iodi gr. x; potassii iodidi gr. xxx; glycerini ℥j). The case was dressed as in the previous instance; but, before the dressing was completed, the sphincters were relaxed, the temperature fell, the surface of the body became livid, and the child seemed moribund for fifteen minutes, after which it rallied. Next day, the child appeared well; but there had been a few clonic spasms of the upper extremities. The tumour felt consolidated. For ten days afterwards, the swelling diminished; and, at the end of this period, consolidation appeared perfect, except in the centre of the swelling, where fluctuation could be felt. Into this part, therefore, some more of the injection was thrown, when, immediately, convulsions, followed by intense collapse, ensued, and death occurred in half an hour. A *post-mortem* examination of the swelling (nothing further was allowed) showed that it had been converted into a coarse fleshy mass, with a central sac about the size of a hazelnut, evidently undergoing recent contraction. This sac had a smooth glistening lining, and communicated with the spinal canal. The sac and the substance of the tumour were filled with venous blood, which kept welling up during the examination. The laminæ and spinous processes of the lumbar and sacral vertebræ were absent, as also was the spinal cord below the twelfth dorsal, where it seemed to burst forth into a leash of nerves which lost themselves in the substance of the tumour. Dr. Cormack attributed the fatal result to two causes, shock and venous hemorrhage; one of the meningo-rachidian veins, in all probability, having been wounded. In the course of the discussion which took place, Dr. Barr said he had seen Dr. Morton operate on several of his earlier successful cases, and doubted whether the treatment was desirable where nervous structures were intimately involved in the tumour. In reply to Dr. Cameron, Dr. Cormack said that, in this fatal case, a certain amount of power seemed to be appearing in the lower extremities after treatment.

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Case of Popliteal Aneurism Cured by the Application of Esmarch's Bandage for Fifty Minutes.—Michael M——, aged thirty-six, a grocer, was admitted into Mr. Tyrrell's ward at the Mater Misericordiæ, Dublin, on the 20th of April, with an aneurism of the left popliteal artery. He stated that up to the preceding March he had enjoyed good health, except for a short time in September, 1872, when he had a slight attack of rheumatism. He had been in America for a year, and while there was very intemperate.

On the 10th of March, when kneeling, he was seized with a most violent stinging pain in the back of his left knee. He stood up at once, and the pain ceased until he went to bed, when it returned with increased violence. The pain continued during the night, to disappear again in the morning. On examination, he noticed a small hardish lump in his left ham, but did not feel it throbbing. For about a month after this he continued quite well, except for a dull pain in the left ham which attacked him on and off.

On the 8th of April, as he was returning home from a long walk, he was again attacked with a most violent racking pain, and the lump, which had up to this date been slowly increasing in size, now increased rapidly, and commenced to throb. He painted it with tincture of iodine, and rested for some days; but, not finding himself getting better, he sent for Dr. White. That gentleman, at once recognizing the nature of the disease, sent him to Mr. Tyrrell. There was no history of syphilis.

On examination, a large pulsating tumour was felt and seen in the left popliteal space, measuring five inches from above downwards, and five inches and a half from side to side. It was soft, and a slight bruit was audible with the stethoscope over it. The superficial veins of the leg were swollen, and the whole limb was slightly œdematous. Neither the anterior nor the posterior tibial arteries could be felt on the left side, but were palpable on the right. The circumference of the left knee immediately above the patella was fourteen inches, on the right side twelve inches and a half; half an inch below the patella on left side fifteen inches, on the right side eleven inches. The tumour was principally in the inferior portion of the popliteal space. The heart-sounds were normal. He required large doses of morphia to give ease from the violent pains, shooting from the toes to the hip, which came on at night. He was ordered to remain in bed, and to take immediately a full saline cathartic draught. He was put on a restricted meat diet, got very little to drink, and was allowed ice and oranges to allay his thirst. He had a subcutaneous injection of morphia at night.

On the 24th of April Mr. Tyrrell applied Esmarch's bandage. Commencing at the toes, the bandage was wound tightly round the limb as high as the tumour, then lightly over it, and again up the thigh. The elastic tourniquet was also put on. The patient complained of considerable pain while the bandage remained on, but it was not so severe as to call for the use of an anæsthetic. Mr. Tyrrell allowed the bandage to remain on fifty minutes. On its removal all pain ceased. The tumour had sensibly diminished in size, was quite hard and globular, and had a very slight pulsation. Digital compression was kept up for two hours. When examined at the expiration of that time, the tumour was found absolutely pulseless. As a matter of precaution a compressor was applied over the femoral artery at the pubes, and the patient was directed to keep it moderately tight. After the elastic bandage was taken off, the leg and thigh were enveloped in a flannel bandage and elevated on pillows.

On the 25th April, the patient, having slept all night, said he was free from pain, but complained of numbness in the toes and foot. The articular arteries around the knee could be both seen and felt to pulsate. In the evening pulsation was felt in the anterior tibial on the dorsum of the foot. The tumour felt very solid; no trace of pulsation. Next day the patient was better in every respect; the œdema of the leg was nearly gone, and sensation was normal in the foot. He slept well, and the tumour was apparently smaller. On May 1st the patient got up and dressed himself, and was anxious to be allowed to walk about, but Mr. Tyrrell would not allow this, as he thought it more prudent to rest the leg for some time longer. Ordered a pair of crutches. On May 2d the patient went home.—*Lancet*, June 30, 1877.

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Large Scrotal Hernia in a Young Child; Operation for Radical Cure by Wood's Method.—On June 2, Mr. Wood operated at King's College Hospital, on a case of large scrotal hernia, in a child aged three years. The case presented several points of interest. The appended remarks have an additional value, inasmuch as they give the results of Professor Wood's most recent experiences.

The case was congenital, and no truss was of any avail. The abdominal opening was large enough to admit easily two fingers direct, and very lax. The coverings of the sac were thin and delicate. The case required delicate and careful manipulation from the great tendency of the bowel to rush into the sac under the least strain. The rupture could be returned, and kept up most easily by holding up the little patient's legs and pelvis. The fingers of the assistant were then placed over the hernial opening, while the preliminary incisions were being made. The sutures were then placed securely, and the loop of wire tightened up and twisted, with the effect of entirely closing up the hernial aperture. Pressure was then made by a pad and spica bandage, and the child's knees drawn up and held securely together by a roller.

In his remarks after the operation, Mr. Wood stated that he had now operated in more than 200 cases, but few of them were so young as this case, for the reason that it was found difficult to control one so young during the critical period just after the operation. This case, however, was so severe and uncontrollable, and so certain if left in its present state to disable the patient for life, that an exception was made to the above rule. With reference to the supposed danger of peritonitis, Mr. Wood said that of the three deaths which had occurred in his hands out of the 200 cases, one only was from peritonitis, but even this was found to arise on the opposite side of the abdomen to that operated on, and to have started from a knuckle of bowel which had evidently been in the sac before the operation, and pressed upon by the truss. No inflammation was found in or near the sac operated on. He had found symptoms of peritonitis in not more than 10 out of the whole 200, and then it was usually slight, and confined to the parietal peritoneum. The chief thing was to choose only healthy subjects for the operation, and to be careful to provide a free escape for any discharge which might occur. Usually the after-discharge was very scanty, and consisted chiefly of serum, which crusted the wound. The wire should not be disturbed till a week or ten days had elapsed, and both the doubled ends had ulcerated into the same track or channel. Adhesion and granulation would by this time have matted together and made adherent the inclosed and twisted sac and parietes of the canal. In a severe case the adhesions usually remain for some time delicate and tender, and require support from a well-fitting truss till they are firmly consolidated. In a small and favourable case, however, the sides of the inguinal canal become blended together over and around the spermatic cord, and the natural valvular functions which prevent rupture are restored and maintained. As far as he could follow the numerous cases, he found an average of cures of about 70 per cent. Some had been shown from time to time in the theatre of King's College Hospital after a lapse of eleven, fourteen, and sixteen years; remaining (one under severe tests) perfectly well, and requiring no truss after the first twelve months.—*Lancet*, June 9, 1877.

A Case of Chorea with Typhoid Fever supervening.—Joseph B., æt. 15½, sailor boy, was admitted into Dr. Barclay's ward at St. George's Hospital, on February 28th, suffering with well-marked chorea.

The boy has always been healthy and robust, but has had swollen cervical glands. History of phthisis in the family. Four years ago he had his first attack of chorea, which came on after a fall; it affected the right side only. He joined a training-ship in September, and on the 5th of January he had another attack of chorea, affecting both sides, and due, as he says, to a fall from his hammock, the fastenings of which had been cut by his comrades.

Feb. 28. Choreic movements of both sides, chiefly in the arms; hesitation in his speech. Strumous aspect; long eyelashes, bluish sclerotics, and white, delicate skin. Loud systolic murmur at apex, which is just internal to nipple line. Diastolic murmur over the middle of the heart. Urine normal. He was ordered a jalap and calomel powder, and two drachms of the syrup of iodide of iron three times a day.

March 6. Choreic movements less. Systolic murmur still heard; the diastolic one has disappeared; speech improved; quite quiet when asleep.

17*th.* As the choreic movements did not seem to improve steadily under the iodide of iron, he was ordered two grains of sulphate of zinc every six hours, and this was to be increased by a grain every day. He soon improved under this treatment, and by the 22d he was walking about the ward, the zinc having been increased to a dose of seven grains.

31*st.* The sulphate of zinc, now in twelve-grain doses, was discontinued, as he had a temperature of 103°.8 with dry, coated tongue, loose, light-coloured motions, and a flushed face. Neither pain nor gurgling in the right iliac fossa. He was ordered an effervescing saline containing ammonia, with milk and beef-tea, and no solids. Within the next few days he developed all the symptoms of a mild attack of typhoid—rose-coloured spots, pain and gurgling in right iliac fossa, loose, light motions, dry, coated tongue, with slight delirium at night. The temperature, however, never rose above 105°; it began to decline on the fourteenth day, and became normal on the twenty-first.

During the typhoid attack the choreic movements became very much less, and at the height of the fever the patient was all but quiet. As soon, however, as the fever left him, and he became convalescent, the movements again returned, though not with the same intensity as before. He could speak better, but there was still a tremulous movement of the lips, and his walk was not quite steady. At the present time (May 11th) he is all but well, and is to be sent to a convalescent home.

The origin of the febrile attack is uncertain, as there had been no case of typhoid in that ward for more than three months. No other patient, either in the ward or in the hospital, developed typhoid. He might have been infected before admission; but then the inoculation stage must have lasted over a month, the usual time being from ten to fourteen or even twenty-one days.

According to Trousseau and other writers on medicine, any specific inflammation during an attack of chorea has a tendency to cure the latter affection, and this effect was well shown in the above patient by the marked improvement and decrease of the chorea during the attack of typhoid.—*Med. Examiner*, June 28, 1877.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

Transactions of the International Medical Congress.—We are informed that the Committee of Publication hope to publish in the month of September the Transactions of the late Congress.

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American Neurological Association. — The third annual session of this Society was held in New York on the 6th, 7th, and 8th of June, Dr. J. S. Jewell, of Chicago, presiding. A number of interesting papers were read, and the following officers were elected for the ensuing year: President, Dr. J. S. Jewell, of Chicago; Vice-Presidents, Drs. F. T. Miles, of Baltimore, and S. W. Webber, of Boston; Secretary, Dr. E. C. Seguin, of New York.

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Medical Society of the State of New York.—The annual meeting of this Society was held at Albany, June 19, 20, and 21, 1877, the President, Dr. E. R. Squibb, of Brooklyn, in the chair. A number of valuable papers were read, and the meeting was one of the most successful and instructive ever held. The time of holding the annual meeting was changed to the third Tuesday of January.

The following officers were elected for the ensuing year: President, Dr. J. Foster Jenkins, of Yonkers; Vice President, Dr. Augustus L. Saunders, of Brookfield; Secretary, Dr. Wm. Manlius Smith, of Manlius; Treasurer, Dr. Charles H. Porter, of Albany.

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Iowa State Medical Society.—The twenty-fourth annual session of this Society was held at Cedar Rapids on May 30th and 31st, Dr. H. C. Bulis, of Decorah, presiding. There were about 130 members present, and the session is reported to have been of more than usual interest.

The following office-bearers were elected for the ensuing year: President, H. Ristine, of Cedar Rapids; 1st Vice-President, Jno. W. Gustine, of Carroll City; 2d Vice-President, L. P. Fitch, of Charles City; Secretary, J. F. Kennedy, of Des Moines; Treasurer, G. R. Skinner, of Cedar Rapids. The next session will be held at Des Moines in February, 1878.

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Changes in Insane Hospitals.—Dr. Charles H. Nichols, Superintendent of the Government Hospital for the Insane, Washington, has been appointed Superintendent of the Bloomingdale Asylum, New York, vice Dr. D. Tilden Brown, resigned.

Dr. W. W. Godding, Superintendent of the Lunatic Hospital at Taunton, Mass., has been appointed to the charge of the Government Hospital.

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Obituary Record.—At Baltimore, on the 3d of July, in the eighty-first year of his age, Nathan R. Smith, M.D., Professor of Surgery in the University of Maryland.

Dr. Smith was born in New Hampshire, and in 1825 he was elected Professor of Surgery in the University of Vermont. In 1827 he removed to Baltimore, and accepted the Professorship of Surgery in the University of Maryland. He was a popular teacher and good surgeon. His name is probably best known in connection with his anterior splint for the treatment of fractures of the thigh.

FOREIGN INTELLIGENCE.

Podophyllin in Constipation and Hæmorrhoids.—Dr. Rousselet (*Gaz. Méd.*, May 26), on the strength of forty-seven cases, confirms the favourable reports that have been given of the utility of this substance in habitual constipation. He prefers pills of the gum-resin, and is of opinion that the remedy is usually continued for too short a period, two or three months being required to contract the habit of passing a daily stool, which, too, should be always attempted at the same hour. He begins with one pill of a centigramme, adding another, if necessary, and continues this dose daily for a fortnight; after this he gives one every other day for a week, and increasing the interval by a day every week. If the bowels in the mean time act irregularly, he goes back to the daily dose, again to diminish it. He prefers giving the pill with the last meal, instead of at bedtime as usually advised. Having observed hæmorrhoids which so commonly accompany constipation, disappear when this is relieved by the pills, Dr. Rousselet tried their effect on persons who suffered from hæmorrhoids as a substantive affection, giving one or two centigramme pills in the same way. His success has been very considerable, the stools becoming softened, and the pain, tumefaction, and vascular enlargement being promptly relieved. The remedy, however, may require to be continued daily for a month or two.—*Med. Times and Gaz.*, June 6, 1877.

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Applications in Syphilitic Ozæna.—Dr. Mauriac recommends (*Union Méd.*, June 28) the following: Sugar or powdered talc, 10 parts; subnitrate of bismuth, 5 parts; and calomel, half a part; some of this to be sniffed up several times a day. Or the following powder may be employed: Alum and tannin, of each 1 part; powdered talc, 10 parts; and subnitrate of bismuth, 5 parts. If there are fungosities or ulcerations, they may be touched with a pencil of nitrate of silver, or with a solution of the strength of a fifth or tenth. Or the following ointment may be applied: Nitrate of silver, half or a whole part dissolved in a sufficient quantity of distilled water; and cold cream, 20 parts.—*Med. Times and Gaz.*, July 7, 1877.

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The Treatment of Tapeworm. — Prof. Mosler has been advocating a system of treating tapeworm which, according to a Swiss medical journal, has been attended with remarkable success. Its chief characteristic is the injection of large quantities of warm water into the colon, after the administration of the anthelmintic. The diet is first regulated, food being given which is supposed to be distasteful to the tapeworm—bilberry tea, herrings, sour cucumber, salted meats. The intestine having been, as far as possible, emptied by laxatives, a dose of the extract of pomegranate-bark is administered, prepared from the fresh bark, and then a large quantity of warm water is injected into the rectum. The theory is that the worm, previously brought down into the colon, is prevented by the water from attaching itself to the wall, and is brought away by the liquid on its escape. It is asserted that in every case in which this treatment was adopted the head of the worm was removed.—*Lancet*, June 23, 1877.

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Trichinosis in Saxony.—In a "Statistical Account of the Epidemics of Trichinosis that have occurred in Saxony during 1860–75," published by Dr. Reinhard in the *Archiv für Heilkünde*, Band xviii., he furnishes a table which shows that within this period thirty-nine epidemics have occurred, giving rise to 1267 cases of trichina disease, and to nineteen deaths, four of these occurring in males, and fifteen in females. Only a very small proportion of the cases arose from eating raw pork, while one-half were produced by eating smoked sausages (*Knackwürste*), giving rise to, however, only two deaths. Among 340 persons who partook of well-prepared sausages (*Bratwürste*), eight died. The epidemic appeared for the first time in fifteen places, more than once in seven places, and seven times in Dresden. In most instances the number of persons attacked was few, the highest numbers amounting to 209, 140, and 199—one death only resulting from the combined total of 548 cases occurring in these three epidemics. In several instances the number of cases was as low as from one to seven. The mean (thirty-two and a half) of the 1267 cases was scarcely exceeded in a fourth part of the places, while in three-fourths of the other places the mean was not reached. In many instances the number of cases was so small as to show that a trichinized animal may be entirely consumed without inducing the disease at all. The same conclusion is arrived at from the comparison of the number of slaughtered trichinized animals and the number of cases of the disease. It is calculated that 100 trichinized pigs will give rise to only four cases of the disease in man.—*Med. Times and Gaz.*, June 23, 1877.

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Arsenic in Domestic Fabrics.—Dr. Owen Rees, Consulting Physician to Guy's Hospital, has again, through the *Times*, called attention to the subject of arsenical poisoning which is going on largely in the metropolis through carelessness. A lining to curtains, of green calico, was found to contain arsenic, and on the removal of the curtains several patients recovered their health at once. This poisonous lining Dr. Owen Rees says he believes is still selling freely, and is doubtless producing severe suffering. Another source is a green muslin much used for ladies' dresses. Dr. Debus, the Professor of Chemistry at Guy's Hospital, purchased some of this muslin, of a very beautiful pale green, for analysis. It proved to contain upwards of sixty grains of an arsenical compound (Scheele's green) in every square yard, and this was so slightly incorporated that it could readily be dusted out. Dr. Rees thinks cases of this kind call for Government interference, since here is a cause for nausea, vomiting, violent headache, inflammation of the eyes, etc., which can only be removed by stopping the manufacture of these deleterious fabrics. Green is not the only colour to be shunned, unfortunately. Dr. Debus found that red, scarlet, and mauve colours—so much in use, and so justly admired—are sometimes contaminated with the arsenic used in their preparation, the metal not being always properly separated. The atmosphere of the ball-room, for instance, where these fabrics are worn, must be thoroughly impregnated with the arsenic shaken off in dancing; and loss of health and languor at the end of a London season are not always to be attributed to late hours and bad champagne.—*Med. Times and Gaz.*, June 23, 1877.

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Deaths from Chloroform.—The Lancet (June 9, 1877) records still another case. This time it is a patient at the Blackburn Infirmary, who was about to submit to an operation for perineal fistula, and died while under the effects of the chloroform.

The *British Medical Journal*, June 30, 1877, records a case which occurred at Mercer's Hospital, Dublin, on the 25th of that month. The heart was fatty.

M. Bachelet, a young student of medicine, a son of the Professor of History at Rouen, having suffered from an intolerable toothache, endeavoured to allay the pain by taking chloroform; but having swallowed too large a quantity, he almost immediately fell down as an inert mass. Notwithstanding every effort, he shortly after died.—*Med. Times and Gaz*, July 7, 1877, from *Union Méd.*, June 28.

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Death under Bichloride of Methylene.—A case of this, which occurred on the 16th of June at the East Suffolk Hospital, Ipswich, is reported in the *Med. Times and Gaz.* for June 23, 1877.

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British Medical Association.—The forty-fifth annual meeting of this body will be held at Manchester on August 7th, 8th, 9th, and 10th Dr. Wilkinson, Senior Phys. to the Manchester Royal Infirmary, is the president-elect.

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German Gynæcological Society.—A number of obstetricians having resolved to found a Gynæcological Society, a committee, consisting of Professors Credé of Leipzic, Hecker of Munich, and Hegar of Freiburg, has framed the rules and by-laws, and has just called the first meeting at Munich on September 15 and 16, for the purpose of discussing these, and entering upon the general business of the new society, for which numerous papers have already been forwarded.—*Med. Times and Gaz.*, June 30, 1877.

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University of Edinburgh.—Dr. Robert R. Fraser, well known for his important researches on the Calabar bean, has been elected as the successor of Sir Robert Christison, in the Chair of Materia Medica in the University of Edinburgh.

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Obituary Record.—At Dublin, on the 13th of June, of pleuro-pneumonia, Henry Wilson, F.R.C.S.I., aged 40 years. Although cut off in the prime and vigour of manhood, Mr. Wilson had attained a very prominent position as an Ophthalmic Surgeon. He held the position of Professor of Ophthalmic and Aural Surgery, in the Royal College of Surgeons, and was Senior Surgeon to St. Mark's Ophthalmic Hospital. He is chiefly known in this country as the author of some admirable "Lectures on the Theory and Practice of the Ophthalmoscope," published in 1868.

BELLEVUE HOSPITAL MEDICAL COLLEGE, CITY OF NEW YORK.

SESSIONS OF 1877-78.

THE COLLEGIATE YEAR in this Institution embraces a Preliminary Autumnal Term, the regular Winter Session, and a Spring Session.

THE PRELIMINARY AUTUMNAL TERM for 1877-78 will open on Wednesday, September 19, 1877, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects, and daily clinical lectures, will be given, as heretofore, by the entire Faculty. Students expecting to attend the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. *During the Preliminary Term Clinical and Didactic Lectures will be given in precisely the same number and order as in the Regular Session.*

The Regular Session will begin on Wednesday, October 3, 1877, and end about the 1st of March, 1878.

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VOL. XXXV. SEPTEMBER, 1877. No. 417.

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CLINICS.

CLINICAL LECTURES.

Notes of a Clinical Lecture on some points in the History of Pneumonia, especially its Duration. Delivered at St. Bartholomew's Hospital. By JAMES ANDREW, M.D., Physician to, and Joint Lecturer on the Principles and Practice of Physic at, St. Bartholomew's Hospital.

Gentlemen: I shall not attempt to-day to give you a systematic account of pneumonia or a description of the physical signs. I shall be content to give little more than illustrations of the clinical history of the disease which have recently come under our notice here, and thus help you in some of the difficulties which beset students.

1st. What is pneumonia? Let me tell you what it is not. It is not simply consolidation of the lung tissue. Thus in a patient with heart disease or pyæmia, the physical signs of consolidation of more or less lung tissue are developed; but you have no right whatever to say that he has got pneumonia. Pulmonary consolidation by itself no more proves the existence of pneumonia than a tumour does that of cancer, delirium that of inflammation of the brain, or a high temperature that of typhus fever. Like all other diseases, pneumonia is constituted not by any single symptom, but by the sequence and relation in which certain symptoms occur. It is outside my purpose here to attempt to define pneumonia. You may lay stress upon the febrile movement or

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Published Monthly by HENRY C. LEA, Nos. 706 & 708 Sansom Street, Philadelphia, *for One Dollar a year; also, furnished* GRATUITOUSLY *to all subscribers of the "American Journal of the Medical Sciences," who remit the Annual Subscription, Five Dollars, in advance, in which case both periodicals are sent by mail free of postage.*

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the local change, but the essentials of the disease are acute invasion, the invasion being marked by the prominence of certain symptoms, especially rigors and frontal headache, and soon followed by the local signs of pulmonary consolidation. In this respect it differs from pleurisy, in which the local symptoms very commonly precede the general ones. After the febrile movement has lasted from five to eight days—seven days is the most usual period—rapid and complete defervescence takes place, followed by a more leisurely restoration of the lung to a healthy state. Remember, of the two different classes of symptoms, local and constitutional, one is just as necessary as the other. Lung consolidated without a certain type of fever has no more right to be called pneumonia than fever without consolidation. In fact of the two the latter would be nearer the truth. You may be now and then fully justified in making a diagnosis of pneumonia, although none but the slightest, perhaps even no physical signs may be present. In the same way you know that the so-called eruptive fevers, even smallpox, are not always attended by the eruption.

Take the following cases as illustrations of typical pneumonia, especially in respect to its duration.

George B., æt. 9, admitted April 12th; consolidation of left lower lobe, with great pain, which was relieved by one or two leeches. Illness began on April 7th. On April 12th the evening temperature was 102°. On the morning of April 13th, *i.e.*, on the seventh day of the disease, it had fallen to 98°.

Joseph R., æt. 8, admitted on May 5th, with a temperature of 103°.5. On May 6th, in the afternoon, it was still 102°.2; at midnight it was 98°.6. He had been taken ill on April 30th, therefore defervescence occurred on the seventh day.

Patrick M., æt. 13, admitted May 18th, with a temperature of 101°.6. This comparatively low temperature was probably due to the cooling effect of his removal to the hospital, for on the same evening it rose to 103°, and he became delirious. On May 19th, his temperature fell to 96°.4. His illness had begun on May 14th, and had thus lasted six days; the left lower lobe was the part affected.

John R., æt. 5, pneumonia of the left lower lobe. Taken ill on May 18th, admitted on May 21st, with a temperature of 103°. The fever subsided suddenly on May 28th, the eleventh day of the disease.

Remember, I am only giving you illustrative cases, not attempting to prove an already well-established fact by statistics; and please notice that in all the defervescence was final, followed by rapid and complete convalescence, whilst the youth of the patients and the probable soundness of their organs at such an early age justify us in supposing that we have here instances of the simple, uncomplicated type of pneumonia.

Unfortunately, we know too well that pneumonia does not always run this favourable course, that defervescence may be deferred indefinitely, and that it often ends fatally. What are the conditions which interfere with the favourable history of the disease? Remember again, if you please, that I am giving only illustrations, not statistical proofs.

Charles H., æt. 49, pneumonia, right apex; subject to cough for some years, but never spat blood; admitted on April 21st, his illness having begun some six weeks previously. Up to April 28th his temperature was about 101°, on that day it became normal and remained so, but on May 23d, notwithstanding progressive improvement in the physical signs and general condition, there were still at the right apex some impairment of resonance, coarse respiratory murmur, and occasional crepitation.

John N., æt. 31, a drunkard, died three days after admission with consolidation of the right upper lobe. At the autopsy, the lung was found in part gangrenous, but there were no traces of chronic disease.

These two cases illustrate the danger of apex pneumonia, and also, perhaps, the causes of the gravity of this form of the disease.

The apex is the favourite seat of chronic changes more or less serious, and thus great additional embarrassment is caused by the occurrence of acute consolidation;

and next, the apex is probably more liable than the base to the serious forms of acute as well as of chronic disease. But you must not suppose that the apex pneumonia is always of abnormal type. We had, not long since, in Mark ward, a case in which defervescence took place on the seventh day. The first condition, then, which I have to mention as interfering with the natural course of the disease, and prolonging or rendering it especially serious, is the occurrence of consolidation at the apex.

Next, remember that the prognosis as to the duration of the disease is always unfavourable if there be much pleuritic effusion in its earlier stages. True, pleurisy is almost always present, but I am speaking now not of mere inflammation of the visceral layer of the pleura over the consolidated portion of lung—often, by the way, the cause of severe pain—but of effusion into the pleural cavity; of cases, that is, in which you find the physical signs of fluid as well as of solid lung. Of this class of cases we have lately had several in the hospital. I shall content myself by just mentioning two. In one death took place after three months' illness; in the other, imperfect defervescence at the end of three weeks was followed slowly by protracted convalescence. In these cases the febrile movement is kept up, not by the pneumonia, but by the pleurisy, *i.e.*, by the spread of the inflammation, set up at first by a specific cause, to neighbouring tissues, just in the same way that ulceration in the intestines in typhoid fever, and in the neck in scarlet fever, spreads to the cellular and other tissues contiguous to the glands at first affected.

Again, the violence of the pneumonic inflammation may completely destroy the vitality of the parts affected. Generally this proves fatal, as in one of the cases already mentioned; sometimes, if the patient survives, it leads to the rapid formation of a large cavity. There is a case of this kind at present in the Mark ward. The patient, a man, æt. 26, who has suffered from no previous illness, will tell you almost the exact spot in a court out of Fleet-street where, whilst coming from his work, he was attacked some eight weeks ago by violent rigors and frontal headache, soon followed by cough. On admission, some six weeks afterwards, he had the physical signs of the lung breaking down at the right apex, and soon there were the usual signs of a cavity, among others, the so-called cracked-pot sound. For some little time the cavity increased almost daily in size; it is now contracting. The moist sounds are disappearing, and his general condition rapidly improving. At the same time, however, the heart is becoming gradually displaced to the right. These cases are much more common, at least in my experience, in children than in adults, and often lead to great displacement of the heart. It may be, however, that it is not the form of disease but the recovery which is more common in childhood.

I tell you that pneumonia is an acute specific disease, or, at any rate, that it deserves the name as much as scarlet fever, typhus, erysipelas, or smallpox; and further, that it most distinctly belongs to the class of diseases which have a definite duration; the termination of a pneumonia can be predicted as successfully as that of typhus fever. But you must not suppose that there are no transitional forms, no links between it and other forms of disease. Here are two illustrations of what I have ventured to call transitional forms. A girl, æt. 18, was admitted about twelve months ago into Mary ward with pleuro-pneumonia of the left side, pericarditis and albuminuria, and we never succeeded in ascertaining which of the local diseases began first. Again, only last week I saw a hardworked clergyman who two years ago, under close and highly-skilled observation, had consolidation of the right lung and albuminuria, apparently beginning simultaneously with the usual symptoms of pneumonic fever. Now in these cases I hold, with Dr. Basham, that the pulmonary consolidation and the nephritis are co-ordinate effects of one general change. But this does not hold good absolutely in cases such as the following. A man, æt. 23, was admitted about six months ago under my care with pneumonic fever and consolidation of the lower part of both lungs, but he had previously had scarlet fever, followed by dropsy, and the pneumonia began with its usual symptoms during the dropsy.

Again, consolidation of the lung, attended by increase of febrile movements, frequently occurs in connection with rheumatic, typhus, and typhoid fever, and from these it is but an easy step to the same event in pyæmia and heart disease. Now in these two latter cases we have seldom, if ever, the right to use the term pneumonia, and yet it is difficult to say at what precise point in the series it ceases to be applicable.

Let me say just a word or two as to some of the causes of pneumonia, and with special reference to its specific character. First, it is a disease of the spring and early summer months; it may be that this is due to the greater liability to chills which the increased day heat brings with it, or that there is some more general atmospheric condition which predisposes to it.

Next some cases of pneumonia are most certainly pythogenic in origin. I have myself seen two remarkable series of cases in which it was impossible to doubt that defective sewage was the cause; and during this present spring a friend of mine at Dorking has met also with a series of six or seven cases depending upon the same apparent cause. Sometimes mere irritating vapours develop constitutional and local disturbance, closely simulating pneumonia. Thus I have had under my care a patient who, after exposure to the vapour of strong liquor ammoniæ, had consolidation of one lung, with marked febrile movement.

We have no time to-day for any detailed discussion of the treatment of pneumonia. I wish to impress two things only upon you. Don't over-treat your patient—you can no more cure the disease than you can cure typhus fever or smallpox; he will get well when the disease reaches its period if your over-activity does not prevent it. And lastly, do not over-examine your patient—the harm done by frequent elaborate examinations will most certainly overbalance any good you or he will derive from them.—*Med. Examiner*, July 12, 1877.

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Notes of a Clinical Lecture on Acne. By JONATHAN HUTCHINSON, F.R.C.S.—When the face is covered with pimples, some of which are red, some contain pus, and others show only black points in their centres—all kinds being present, and all slow in progress—it is commonly agreed to call the condition Acne. If the spots are angry and suppurate quickly, it is acne pustulosa; if they are small, very florid, and not prone to suppurate, it is acne rosacea; if there is great thickening about them, and again little tendency to suppurate, it is acne tuberculata; if there are numerous black points to be seen, it is acne punctata; lastly, if no one of these features be in excess of the others, it is common acne—acne vulgaris. Now, let us first understand clearly that these various adjectives do not denote different diseases, but merely different conditions of the same disease, which may be frequently met with in one and the same case. Next, we will observe that all forms of acne are inflammations of sebaceous follicles. I have already said that, when a follicle inflames, three results ensue—a thickening of its gland tissue, deposit and congestion of the cellular tissue around it, and accumulation of its secretion in its interior. Now, we have in acne all shades of variety as to these three results. Every one is familiar with the little black dots so frequent in the skin of the face of those who have rather coarse complexions. In degree they may perhaps be found in the skins of most persons, especially about the nose. If you squeeze them, little black-headed "maggots" are ejected. These maggots, or grubs, are not living, but consist of half-dried sebaceous matter, which had accumulated in the cavity of the gland, and which has been moulded into the pellet form in passing through the constricted opening. The black head is the end of the pellet, which, having been long exposed at the mouth of the duct, has gathered soot.

It is not always that the end of the pellet gets blackened; sometimes, and especially in young persons, the mouth of the follicle is closed by a delicate membrane, and then the secretion collected beneath it is seen under its transparent covering, and remains quite white. In infants this distension of closed follicles constitutes what used to be known as strophulus albidus; in adults it is more frequently seen on the eyelids than on other parts.

Sometimes the interior of the follicle suppurates, and, after removal of the pellet, pus escapes. This constitutes pustular acne.[1]

It is a peculiar feature of the condition known as acne, that at one and the same time, in the same patient, you will find the follicles in all stages of disease, some simply distended and free from material irritation, others congested also, others suppurating. In this it differs much from lichen.

Acne is emphatically a disease of coarse skins; or rather, perhaps, we ought to say that the term "coarse skin" usually applies to integument in which the sebaceous follicles are larger than ordinary, and have gaping mouths. This causes the skin to look rough and pitted. It is a state of skin the tendency to which is often hereditary, and it is thus often seen in several members of the same family.

Acne spots cause more annoyance on the face than elsewhere, and hence an exaggerated impression as to their great relative frequency on this part. Although there is no doubt that the face and shoulders are their usual sites, yet, if you will examine the general surface of acne patients, you will very frequently find the spots, in smaller numbers, on the trunk and the upper arms also.

Having asserted that all persons of coarse skin are liable to have their sebaceous follicles take on occasionally the acne inflammation, we may suitably ask what are the causes which induce the more severe forms of the disease. For clinical purposes we may recognize acne chiefly in two forms—first, the acne of young persons; and second, the acne of those past middle life. It is in young persons that we meet chiefly with the pustular, punctate, and vulgaris types, whilst in the elderly we encounter the acne rosacea and tuberculata. Respecting the acne of the young, there is a very widespread opinion that it is usually the result of sexual disturbance. I have no doubt that this belief is well founded to some extent, but we must beware of exaggerating it. The eruption is chiefly met with in young celibates, whilst it is very rare under the age of puberty, and is often benefited by marriage. It is possible, however, that its comparative rarity in the married may after all be a coincidence and not a sequence, and that we ought to consider it not so much a disease peculiar to celibacy as to the special age at which a large majority of the population are celibates. It may certainly occur before puberty. I have seen it not very infrequently in children, and once in a very marked form in the face of an infant of six months. It is also frequent in married persons of both sexes, and sometimes originates after marriage. I have known it occur in ladies who were bearing children, and in whom the sexual functions appeared to be in perfect activity.

Making full allowance for a considerable number of acne cases in which there appears to be no sexual cause, there are yet, I think, good grounds for accepting the general belief that in a majority of instances such is the fact. The remarkable influence which the sexual functions exercise upon the general health and upon the state of the nervous system is amongst the secrets known unto all men. That they should have the power of making the sebaceous glands of the skin enlarge and suppurate is certainly, if thought about, one of the most strange. I suspect that, when it occurs, it is brought about through the agency of the nervous system rather than of the blood. Women who are not liable to acne at other times sometimes have a few spots appear at each menstrual period, and that whilst in excellent general health. I have been assured by gentlemen liable to nocturnal emissions that they invariably had an increase of acne spots after such occurrences, and sometimes so immediately, that it was impossible to believe that any material change in the blood had occurred. In other cases sexual intercourse may produce the same result.

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[1] By some authors called Milium *seu* Grutum.

It is certainly not in cases of extreme sexual exhaustion that acne is most common. I have seen many such patients, both with and without spermatorrhœa, who had not a spot of acne, but, on the contrary, had skins which were perfectly smooth — in some instances florid, in others earthy pale. It is, perhaps, rather a condition of sexual irritability than of exhaustion which produces acne. I do not think that the severity of the acne eruption bears any relation to the degree of sexual disturbance. In the worst cases that I have seen the patients often seemed to be in good health.

To dismiss the subject, we may remark that the prescriber ought, in respect to the acne of celibates, to bear in mind the possibility of a sexual cause. He will advise the adoption of measures likely to improve the general vigour, he will caution against any possible causes of debility, and he may, in some instances, suggest matrimony as the remedy most likely to prove successful. Derangements of stomach and liver stand in about the same relation to the acne of middle-aged persons that sexual causes do to the acne of early life. Manifest dyspepsia (often the result of intemperance) is present in perhaps half the cases of acne rosacea, whilst in the other half it is exceedingly difficult to assign any cause. The same remark applies also to the indurated and tuberous form of acne, which produces the thickened, bossy condition of skin familiarly known as "grog-blossoms," and usually considered to be proof of intemperance. In many cases such suspicion is most unjust. At any rate, of this you may be sure—that in persons congenitally of coarse skin very slight indulgence at the table may produce results in the way of acne, which would not ensue in others whatever the amount of provocation afforded. As I asserted in reference to sexual exhaustion, so I may say here again, it is common enough to see the most intemperate escape scot-free. Nothing would be more unjust than to allow ourselves to entertain the belief in the one form of acne, that it is certainly due to sexual causes, or in the other that intemperance or gluttony is the cause. We will freely admit a frequent connection, but strongly deny that it is invariable. For the worst forms of acne of either variety you will be able to discover in the patient's state of health or antecedents no cause whatever, and you will be compelled, in considering your measures of treatment, to regard it chiefly as a local disease.

The rules for the constitutional treatment of acne patients follow easily from what we have said. If the patient be young he should be made to use a cold bath every morning, to take plenty of exercise, to live liberally as regards meat diet, with a fair allowance of stimulants; and he should be cautioned or encouraged, as the case may be, in reference to sexual matters. As to medicines, a long course of small doses of arsenic will often be of great use. If constipation be present, the habitual use of a chalybeate aperient should be prescribed. You may do all this, however, most sedulously, and gain nothing whatever, if you neglect local measures; whilst with the latter only, and without any change in the patient's habits, you may often get an acne eruption so nearly well that he will regard it gratefully as a cure. The chief local measure consists in destroying, by means of a fluid caustic, the inflamed follicles. With a fine-pointed glass brush, or a bit of soft wood cut to a point, you touch the inflamed spots from day to day. Take great care not to apply too much. In the left hand should be a roll of blotting-paper with which to absorb the fluid if it has been deposited too abundantly. The best fluid to use is the acid nitrate of mercury. It will usually be necessary to repeat the touching once a week for a month or two, carefully seeking out every fresh spot. After that the patient should still see you once a month, in order that the cure may be kept up. The acid thus used does not leave larger scars than the spots would themselves do.

In acne rosacea the use of the caustic

will again serve an excellent purpose. You may not only touch the spots themselves, but also pencil out the stray vessels which add so much to the patient's disfigurement. He, or more usually she, will gladly exchange a few slight and scarcely perceptible scars for the angry and very suspicious-looking redness of face which the disease causes. — *Med. Times and Gaz.*, July 28, 1877.

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Treatment of Phthisical Cavities.—In the course of a clinical lecture on Excavation of the Lung in Phthisis (*Lancet*, August 4, 1877), Dr. R. **Douglas Powell**, Physician at the Brampton Hospital for Consumption, said: I purposely avoided saying anything about the treatment of *contracting cavities*, for I believe that there is nothing special to say about them. There is one point, however, as regards the management of cough in these cases that may be mentioned. It often happens that the patients, long accustomed to expectorate easily, complain of "tightness" of the chest, and dry, teazing cough. This cough must of necessity be allayed by the free use of cough mixture, but the patients should at the same time be directed to restrain, as far as possible, by an effort of the will, the cough, which by its rending action tends to disturb the healing process going on in and around the cavity. We must do what we can to keep the patient in his favourable condition of general health; we must watch for, and by timely treatment subdue, catarrhs, or, still better, if possible avoid them by judiciously-selected climates. We can give no medicine that will directly hasten the contraction of cavities. In some cases we may try by the selection of high climates to encourage the more rapid expansion of the opposite lung.

In the treatment of *secreting cavities*, the objects we have in view are (1) to lessen secretion, (2) to promote evacuation of what secretion is formed, and (3) to disinfect such cavities. Counter-irritation—of little use, I believe, whilst cavities are still forming or extending—is of great service in these cases. When we remember that in chronic excavation of the lung we almost invariably get an intimate union of the two pleural surfaces and an anastomosis of their vessels, we may see why the application of a blister externally may affect such cavities. As a matter of fact, they do influence them most decidedly. Strong iodine applications (two drachms to the ounce), or flying blisters, or perhaps a blister kept open for a few days by the use of savin ointment dressing, are the forms of counter-irritation suitable to different cases. Under their use the cough and expectoration frequently diminish. Acids and astringent iron tonics and oil are needed. Sedative cough mixtures are directly contra-indicated in these cases, except for the purpose of giving rest at bedtime. It is in these cases that inhalations are most useful; for, firstly, there being no actively spreading disease present, they can do no harm; secondly, we can by their use render less noxious the pus that bathes the surface of the cavity, and which is apt to become inhaled during the effort of expectoration into distant parts of the lung; thirdly, inhalations help expectoration; fourthly, there can be little doubt that appropriate inhalations sometimes have a healing or an alterative effect upon the internal surface of the cavity.

The best substances for inhalation are —iodine (vapor iodi B. P.), only to be used occasionally and for a few days together; carbolic acid (glycerine of carbolic acid, one drachm to two drachms, to half a pint of hot water); or tar water (liq. carbonis detergens, one drachm, to half a pint of hot water); useful disinfecting and, except iodine, somewhat sedative inhalations, that may be employed two or three times a day. They may be taken very well from a deep jug or a Nelson's inhaler with the sponge removed. Friar's balsam, tincture of larch, turpentine, etc., may be similarly employed from time to time. Perchloride of iron or other astringents may sometimes be used with Siegle's spray apparatus; but I have myself failed to find atomized astringents useful in these cases, and doubt if they penetrate so far as vapours inhaled in the ordinary way. Sea air, and perhaps especially sea-shore air, containing more or less salt spray, is usually beneficial to these patients. A liberal diet is of course necessary.

Cases of *active or ulcerous cavities* may require at first the free administration of alcoholic stimulants; a somewhat liberal allowance of wine is also subsequently needed, with nutritious support and abundance of good air. These active or ulcerous cavities tend to become endemic in over-crowded wards, and their occurrence should always lead us to look to sanitary arrangements, for their pathology strongly suggests their erysipelatous nature. It cannot, indeed, be too carefully remembered, in the treatment of patients with phthisical affections of the lungs, that they have internal wounds or sores, which, unlike most other internal affections, are accessible to the contamination of foul air, and that thus erysipelatous processes may be readily set up which are too apt to be recognized only as "intercurrent pheumonias" or other local inflammations.

Medicinally these cases may be combated by quinine internally, or in some cases full doses of perchloride of iron; sedative inhalations, containing tincture of benzoin and opium, hyoscyamus and chloric ether, carbolic acid and opium, etc., are useful. Ipecacuanha wine, administered as spray with Siegle's inhaler, is worth a trial, but patients suffering from this condition of cavities are often too prostrated to bear the fatigue of inhaling. If the more active general symptoms should lessen, but a blood-stained and copious expectoration still leads us to infer that the walls of the cavity are hyperæmic, I am convinced from observation that the best treatment is to apply a blister over the region of excavation, and to keep it freely discharging for several days by means of savin ointment dressing. I have seen the active symptoms completely subside under this treatment—which is, however, somewhat severe and painful—and the cavity subsequently contract, the expectoration, from being abundant and sanguineous, becoming scanty, viscid, and apparently consisting of bronchial mucus only.

Attempts have been made from time to time to treat lung cavities, on surgical principles, as local abscesses, by evacuation of the matter from without, or by the injection of astringent or disinfecting solutions. Dr. Mosler, in the *Berliner Klinische Wochenschrift* for October, 1873, relates three cases which he has treated in this way. In the first two cases he indroduced a small canula into the cavity, and daily injected a small quantity (twenty cubic centimetres) of permanganate of potash solution without causing any serious inconvenience. In a third case he introduced a silver drainage-tube into a large cavity, through which much discharge escaped. After six weeks the patient had slight hæmoptysis, and a weak solution of perchloride of iron was injected, and subsequently a pulverized weak solution of carbolic acid and iodine were blown through the canula. The patient died at the end of three months of amyloid disease of organs.

Dr. Wm. Pepper, of Philadelphia, has treated three cases by the injection of astringents through a fine Dieulafoy's needle, in one case, he states, with positive improvement. He suggests that hæmoptysis should be treated in this way.

These procedures, and others of a like kind, can only as yet be regarded as tentative, and as useful in showing what *can* be done if necessary in cases of the kind. So far as we can see at present, however, cases must be extremely rare in which such treatment would be likely to prove useful. It sometimes happens, however, that a cavity is situated quite at the base of the lung, and the removal of secretion from it is extremely difficult, attended with vomiting and great distress; portions of the irritating matters from the cavity are inhaled into the bronchial tubes of the other lung, setting up fresh inflammatory centres there. In these cases the cavity, being at the lowest point of the lung, might well be treated as if it were a pleural abscess.

HOSPITAL NOTES AND GLEANINGS.

Hospital Notes. King's College Hospital: Dr. Johnson's Wards.

Stricture of the Œsophagus.—A woman, forty years of age, and markedly emaciated, complained of great difficulty in swallowing. Her illness commenced four months previously to admission, with difficulty in deglutition, which had gradually increased, and during the last three weeks she had become rapidly worse, so that she was able to swallow nothing but a little milk and beef-tea, and had suffered much from hunger. An œsophageal bougie, when passed, met an obstruction opposite the thyroid cartilage, and could not be passed further. There was no difficulty in respiration, and the lungs and heart presented no signs of disease. On laryngoscopic examination, a white mass was seen situated between the larynx and pharynx. She frequently complained of pain towards the left side of the larynx. As the stomach-tube could not be passed, a No. 10 elastic catheter was used, and this easily slipped past the obstruction. The stomach-pump was then attached to the catheter by means of a piece of elastic tubing; and strong beef-tea, eggs, and milk, etc., were injected. This method of feeding has been repeated at intervals, and has been followed by a considerable amelioration of the patient's condition.

Dr. Ferrier: Out-Patient Department. Hemichorea. — A woman, twenty-three years of age, complained of a troublesome jerking of the right arm, often, she said, as violent "as if it would tear out the arm from its socket." This illness followed her confinement six weeks ago; she had never had chorea previously, but seven or eight years ago she was attacked with "rheumatics," which, however, did not prevent her moving about. A sister, aged twenty-eight years, had, while pregnant, been attacked with a fit, followed by general and violent chorea; there had also been considerable mental disturbance after her confinement, necessitating her removal to an infirmary. The patient was much distressed and frightened by her sister's illness; and three days after her own confinement, which was long and trying, choreic movements commenced in her left arm and leg; these have been accompanied by burning sensations in the left side of the body and in the back. Muscular power was much diminished in the left hand, but there was no anæsthesia. When the woman held out her arms, constant irregular movements were seen in the left arm and hand; so also with the left foot and leg when the patient sat down and held out both feet. The left side of the face twitched somewhat, and, when standing erect, the body swayed from side to side. There were no signs of heart-disease. Dr. Ferrier considers that the pathology of chorea has yet to be made out, and is not much inclined to give credit to the theory of embolism or thrombosis. In the course of Dr. Ferrier's physiological experiments, a monkey, in whom the lateral portions of the cerebral hemisphere were exposed, became choreic on the opposite side of the body, and subsequently developed epileptic convulsions. The symptoms of chorea differ from those of sclerosis in being more constant and irregular, not simply coming into prominence when a voluntary effort is made, as in sclerosis. In paralysis agitans, again, the movements may be described as constant and vibratory in character. The patient was ordered liquor arsenicalis.

Cutaneous Hemianæsthesia.—A woman of nervous manner complained of numbness of the left side of the body, arm, and leg; also of "flushing heats." When her eyes were shut, on touching with a needle the corresponding points on the two hands, she said she did not feel the touch on the left side; but if the needle perforated the skin, she could feel the prick. Similar anæsthesia was found in a less marked degree on the left side of the face. Sight was equally good on both sides. Hearing, as tested by the watch, was fair on both sides, rather more acute in the right ear. A vibrating tuning-fork, placed on the bridge of the nose while the woman closed her ears, was longest audible in the right ear. The sensibility of the tongue, both to touch and taste, was diminished on the left side. Smell was tested by holding tincture of assafœtida to each nostril alternately, the eyes being closed; the patient seemed hardly to perceive it at the left nostril. Taste and tactile sense appeared to be diminished on the left side of the tongue. The woman was also liable to attacks of headache, with dysæsthetic ocular phenomena, described as "wheels of brightness." She suffered from dysmenorrhœa and slight menorrhagia; no abnormal condition of the uterus was found, but there was marked tenderness in the left ovarian region. As usual in cases of neurosis dependent upon ovarian irritation, there was tenderness over the fourth dorsal vertebra. Dr. Ferrier expressed his belief that many cases of hemianæsthesia would be found if they were more frequently looked for. In this class of cases, hystero-epilepsy (Charcot) is frequently met with, and such attacks may often be arrested by firm pressure over the ovary affected.

Cross Paralysis.—A woman, aged 32, was attacked last January with a fit, accompanied with loss of consciousness; the face was drawn to the left side, and the left arm and leg were paralyzed both as to motor power and sensibility; she also lost the power of speech for a week. When examined, on making her show her teeth and by watching the features while she was speaking, it was evident that the *right side of the face* was partially paralyzed, especially in its lower parts, while the left arm and leg were much weaker than the right. This condition of hemiplegia on one side, with paresis of the face on the other side, both having occurred at the same time, indicated a probable lesion in or near the pons Varolii.

Facial Neuralgia. — A woman, forty-three years of age, of nervous temperament, complained of a sense of oppression at the back of her head and violent facial neuralgia, accompanied with loss of sleep. This appeared to have followed the mental shock and depression due to the illness and death of her mother. She was ordered bromide of potassium.

Fits, with Disease of the Heart. — A woman, aged 40, complained of attacks apparently epileptoid, and attended by partial syncope; consciousness was lost in these fits, and there was struggling; sometimes the tongue was bitten. Examination showed signs of both aortic and mitral regurgitation. There was no family history of neuroses; and cerebral anæmia, due to the defective circulation, appeared to be an important element in the causation of the attacks. Dr. Ferrier ordered a mixture of digitalis and bromide of potassium, and remarked that while the bromide would lessen the conductivity of the nerve-fibres, as indicated by its action in rendering the mental powers dull, the digitalis would render the nervous centres less excitable to reflex action, and increase the muscular strength of the heart.

Mr. Wood's Wards. Sarcoma of the Lower Jaw.—A man, thirty years of age, was operated on a month ago for the removal of a tumour of the lower jaw. A single semilunar incision was made in the line of the lower jaw, the saw was then applied to the bone behind the lateral incision, and, by reflecting the face upwards, the bone was removed with the tumour. The mass proved to be a mixed form of sarcoma, consisting partly of round cells and partly of spindle cells. The tongue was not involved, and the features were but little disturbed. The man is now convalescent, and there is as yet no sign of return of the disease. .

Impermeable Stricture of the Urethra.—A man, the subject of a stricture of long standing, was admitted to the hospital with complete retention of urine. The attempt to pass a catheter was made, but failed. A hot bath was used without relief. To relieve the urgency of the case, a fine aspirator needle was passed into the bladder, above the pubis; 36 ounces of urine were thus drawn off. The smallest size elastic catheter was then passed into the bladder, without the stilette, and tied in. Hot fomentations were then applied, and an aperient draught ordered, to be followed by a sedative draught of morphia.

Strumous Disease of Joints.—A lad presented strumous disease of the wrist-joint, and phthisical changes in one lung. The joint was painted with iodine and placed on a straight splint; the hand was then placed in a sling, ice being at the same time constantly applied by means of an ice-bag hung round the boy's neck.

Salicylate of Quinine, in doses of two to five grains, is being tried by Mr. Wood in cases of chronic suppuration attended with high temperature; the results have yet to be observed.

Recto-vaginal Fistula.—The woman, in her last confinement, was delivered by forceps, three times applied during labour. No immediate ill results followed, and she convalesced; at the end of a fortnight, however, sloughing occurred. When admitted to hospital, the recto-vaginal septum had almost entirely disappeared; a fistula also opened from the bladder and urethra into the vagina. The edges of the fistula were pared, the adjacent mucous membrane was dissected up, a median flap was drawn over the opening, while lateral flaps were united over this by means of wire sutures. There has been no sloughing, and the patient is doing well. Great attention has been paid to cleanliness, and the patient has been kept in the prone position, in order that the urine in the bladder may be prevented from finding its way through the fistula.

Amputation of the Foot; Quick Recovery.—Mr. Wood amputated a boy's foot for disease of the ankle-joint. Dry dressings were applied; union occurred by the first intention, and he was discharged within three weeks of the operation; in another fortnight he was walking about. No special antiseptic method was employed, but great attention was paid to cleanliness.—*British Med. Journ.*, Aug. 4, 1877.

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Lymphadenoma of the Pelvis; Hæmaturia; Transfusion; Death three days subsequently.—E. T. C., aged twelve, was admitted into Albert Ward, St. Thomas's Hospital, under the care of Mr. Sydney Jones, on April 16, 1877. He stated that he was quite well until one month ago, when he was kicked in the perineum by another boy. He suffered no pain at the time, but two or three days afterwards pain of a dull, heavy character gradually came on, which was worse at night and on sitting down; this interference with sitting was the first thing noticed by the mother. There was no pain on defecation, but the pain kept him awake more or less. The swelling first appeared, about a week after the pain, as a hard lump the size of a hazel-nut, situated in the middle line behind the anus, but it was never tender at any time; this increased in size until, on admission, it occupied the whole breadth of the perineum, extending from about half an inch in front of the anus to the tip of the coccyx. There was no history of any tumours in the family.

On April 17 the boy was examined by Mr. Sydney Jones, under chloroform. The rectum was surrounded, except in front, by a hard, smooth, new growth. The upper limit could be felt at the extremity of the forefinger as a rounded, defined ridge. The coccyx moved with the tumour. The abdomen was very thin, allowing the spinal column to be felt easily. Ordered twenty drops of the syrup of the iodide of iron twice a day.

May 5. The skin covering the tumour was of a dark-red colour. Complained of much pain in his back. Motions passed involuntarily.

6*th.* Subconjunctival hemorrhage in right eye.

8*th.* Rectum again examined under chloroform, and tumour found to have increased considerably in size, having encroached more upon the rectum, so that the finger was very tightly grasped. Upper limit could only be reached with difficulty. An enlarged gland discovered in the right groin, very large and prominent. (A slight trace of this was felt on April 17.) The abdomen was found to be extremely tense, due to a distended bladder. Urine drawn off by catheter. Mr. Jones thought that patient's countenance suggested hemorrhagic diathesis.

11*th.* On the patient attempting to get up, it was found he could not stand; his legs gave way under him, and he had to be carried back to bed. When in bed he could draw up both his legs, but complained of much pain in the left leg, and also of a feeling of pins-and-needles. On examination, a dark-blue mottled patch (hemorrhagic) was observed on the outer side of the thigh, extending nearly its whole length. Ordered morphia injection. The mother stated that his father is subject to epistaxis.

Although catheterism had been necessary for the last week, on the 14th water was passed freely. A prominence was discovered over the first or second sacral vertebra, and a spot of extravasated blood over it. He complained of feeling unable to move his legs; he could, however, draw them up, but seemed to have lost a great deal of control over them, so that the last part of flexing his thighs was apparently quite passive, the thighs falling helplessly on to the abdomen. The left leg was bandaged from the foot upwards.

15*th.* Patient looked worse, and extremely anæmic. No further retention; abdomen tympanitic. Motions passed involuntarily up to the 11th inst.; voluntarily since. Gland in right groin no larger; five or six small flat round swellings, about the size of peas, discovered this morning lying under, but not adherent to, the skin of abdomen, also one on left thigh. Some hemorrhage over right tibia, and also a few other spots of hemorrhage in various places. Loss of control over both legs much more marked. Some œdema of scrotum and feet. It was thought desirable to try the effect of transfusion.

16*th.* Seen by Mr. S. Jones with M. Roussel, the latter performing transfusion at 2 P. M. Cephalic vein opened, and about five ounces of healthy blood injected from the median cephalic vein of Mr. Leatham, one of the students. Before the operation, respiration and pulse were very rapid; during transfusion the boy complained of being unable to breathe, and the cheeks became more rosy. A small pad of oiled lint was placed over the wound, two harelip pins securing the edges. After operation he was removed to bed, wrapped in blankets, and had hot-water bottles applied. 3.20 to 4 P. M. More or less rigors. Complaining of feeling cold; no vomiting. 4.15. Temperature in mouth, 98.4° F. After taking some hot tea and brandy he began to get a little warmer, the colour returning gradually to his lips and cheeks. Involuntary passage of feces; no blood. 4.45. Complained of curious sensations all over, looked frightened, screamed, and tried to throw the bedclothes off, saying he felt so hot. Passed six ounces of urine deeply coloured with blood, uniformly mixed, after which he appeared easier. Respiration rapid. 5 P. M. Temperature in axilla, 105.4°. Great thirst. 6 P. M. Perspiring profusely; restless and irritable. 7.15 P. M. Much cooler; lies quiet and apparently easier; less thirst; lips again blanched. Respiration 48; pulse 108. 8.15 P. M. Has twice passed urine deeply coloured with blood; motions passed voluntarily. 9 P. M. Temperature 100.4°. 11 P. M. Sick for the first time, vomit being of a sour odour, but without bile or blood. Passed a small quantity of urine, bright-red, but less dark than the last three times.

17*th.* Temperature, 9 A. M., 103.2°. Had two rigors very early this morning. Water passed freely, and each time becoming less red. Took some solid meat for dinner. Complained of headache during the morning; restless and irritable at times. Temperature, 10 P. M., 99.2°. Wound dressed, and looks healthy; some oozing through the bandage.

18*th.* Temperature 98°, 2 A. M. Slept well, and seems much better altogether. Stronger, but still very anæmic. Vomited twice during the night. Passed water freely without blood, but once had a little discomfort before micturition. Complains of headache, and no appetite. Temperature 98°, 8 P. M. Ordered five drops of tincture of perchloride of iron every six hours. The bandage on left leg, causing him discomfort, was removed.

19*th.* Passed a very bad night. About 12, complained of difficulty of breathing. This morning suffering from great dyspnœa; nares dilated; lips livid; countenance dusky. Perspiration 58; pulse 120; carotids pulsating forcibly. Had muscular tremours affecting all the muscles of his right leg. Complained of pain all over, especially at the back of his neck and at the lower dorsal region. Wound on arm dressed; edges gaping and bluish-looking. Dyspnœa gradually increased, with great restlessness; screaming with the pain in his back, and died at 12.30 P. M.

Autopsy —A tumour was found in front and at the sides of the coccyx. The growth presented the ordinary characters of lymphadenoma, consisting of a coarse retiform connective tissue, with small somewhat irregular cells in its meshes. It filled the ischio-rectal fossa, and caused protrusion of the anus and neighbouring skin; from the anus it extended to a point two and a half inches above, where it terminated in a well-defined border; above this the tissues were brawny and infiltrated by a similar growth. The tumour firmly embraced, but was loosely attached to, the rectum. Extending upwards into the abdomen from the tumour was a chain of enlarged glands. On cutting through the muscles lying on the left side of the spine, on a level with the sixth dorsal vertebra, a mass of new growth, about the size of two hazel-nuts, was found; also, on the same level, between the coverings of the cord and the spinal canal, was another mass of new growth. In the walls of the heart were two or three small masses, also spots of ecchymosis. No emboli. Left lung œdematous; right healthy; small extravasations in both. Kidneys anæmic; on the left side the straight tubes were in places filled with blood. Under the mucous lining of the bladder was one spot of extravasated blood about the size of a pea. Ecchymosis in both retinæ, and the anterior part of both hemispheres of brain. Suppuration in both tonsils.—*Lancet*, July 21, 1877.

MEDICAL NEWS.

ORIGINAL ARTICLE.

Death from Gunshot Wound after an interval of Fourteen Years. By R. S. KEELER, of Phœnixville, Pa.—The length of time intervening between the date of injury and the death of the patient, as well as the peculiar course taken by the ball, renders this case one of considerable interest.

I was called, on December 25, 1876, to see Mr. J. L——, who stated that he had been wounded at South Mountain, on September 14, 1862, and that his wound had never healed, because the ball could not be found. Upon examination I found a wound in the abdomen, upon a level with the anterior-superior spinous process of the ilium, and at a point midway between this process and the linea alba. The patient informed me that pus had never ceased to be discharged from this wound, and that he had also secured thirty-two sequestra of different sizes. Although he had been probed repeatedly by several surgeons, no traces of lead could ever be detected. When I first saw him, he was suffering from hectic, and complained of intense pain upon the inner side of the thigh and leg. I did not think operative interference advisable at that time; hence I endeavoured to improve his general condition by constitutional treatment. Despite every effort, however, he failed rapidly, and died on January 10, 1877. I made an autopsy on January 12, and found that the missile, entering at the point already indicated, on the right side, struck the crest of the ilium, which it shattered. It then passed downward and forward, finally lodging upon the ramus of the ischium in the obturator foramen. The crest of the ilium was much thickened, and extensively necrosed upon its inner surface. The ball, when found, was much corroded and distorted in shape, weighing but six drachms, though we were able to identify it as a round ball of an ounce and a half weight. It may also be stated that there was no evidence that the ball had ever been encysted.

DOMESTIC INTELLIGENCE.

Canada Medical Association.—The tenth annual meeting of this Association will be held in the city of Montreal, on Wednesday, September 12, 1877.

American Public Health Association.—The fifth annual meeting of this Association will be held at Chicago, on Tuesday, September 25, 1877.

Minnesota State Medical Society.—The ninth annual meeting of this Society was held at St. Paul, on the 18th and 20th of June, Dr. F. H. Milligan, of Wabasha, presiding. The following officers were elected for the ensuing year: President, Dr. Otis Ayer, of Le Sueur; Vice-Presidents, Drs. C. P. Adams, of Hastings; A. C. Wedge, of Albert Lea; and E. E. Collins, of Minneapolis. Treasurer, Dr. S. B. Sheardown, of Winona; Secretary, Dr. C. H. Boardman, of St. Paul.

Illinois State Board of Health.—The people of Illinois are to be congratulated upon the enactment by their last Legislature of a bill to establish a State Board of Health. The Board has organized by the unanimous election of Dr. J. H. Rauch, of Chicago, as President and Acting Secretary—a selection which gives great promise of the future efficiency of the Board.

Bromide of Ammonium in Hay Fever.—Dr. E. C. Seguin, of New York, reports (*Journal of Nervous and Mental Diseases*, July, 1877) that last year he induced two or three persons suffering from this disease to employ a strong gargle of bromide of ammonium, and to wash out the nasal passages with a weak solution of the same salt several times a day during the attack. The result was so gratifying that he is disposed to ask physicians to give a fair trial to this treatment during the coming summer and autumn. The gargle to be of the strength of ʒj or ʒij of bromide to ℥j water; the solution for the nares much weaker, of from 10 to 30 grains of bromide in ℥j water.

Honour to Physicians of Pittsburg.—During the recent severe experience of the Philadelphia militia at Pittsburg, whither they were sent by the Governor of the State to aid the constituted authorities in suppressing the railroad riots, and while the citizens of that place generally appeared to be inimical to the troops, the first of the few who promptly came forward with friendly offers of food and personal aid were members of the medical profession. We are gratified to be able to record this to their honour, upon information derived from an official source.

Obituary Record.—At Hanover, New Hampshire, on August 10th, Alpheus Benning Crosby, M.D., aged forty-five years.

Dr. Crosby held the Professorship of Anatomy in Bellevue Hospital Medical College, and was a son of the late Dr. Dixi Crosby, of New Hampshire.

FOREIGN INTELLIGENCE.

Slow Pulse. — M. Rendu brought a labouring man, aged thirty-eight, before the Lyons Medical Society, as exhibiting a remarkably slow pulse, viz., 41 to 42 per minute, no difference being, however, notable whether he was in the erect, recumbent, or sitting posture. The man, who was robust and in perfect health, had applied for some trifling ailment. Not only is the case interesting on account of the slow pulse, but because it proves an exception to the rule laid down by Graves, that whenever there is no appreciable difference in the pulse in the different positions of the body, there is always hypertrophy of the heart accompanied by dilatation. Graves only met with six cases in which the difference was not observable, and in all these this lesion was present. However, in the present case there is no sign whatever of disease of the heart. — *Med. Times and Gaz.*, July 14, 1877, from *Lyon Méd.*, July 1.

Hay Fever.—A correspondent of the *Lancet* (July 21, 1877) says that an ointment of one grain of morphia, ten grains of quinia, and three drachms of spermaceti ointment, when smeared on the inside of the nostrils in small quantities, relieves the irritation consequent on hay fever.

Fetid Feet.—In an article in the *Révue de Thérapeutique* it is stated that an immediate remedy for this noisome affection is found in washing the feet with a solution (1 in 100) of chloral, and keeping them enveloped in compresses wetted with the same solution. Results as satisfactory have long since been obtained by Dr. Bourdon by the employment of a solution (commencing with 3 in 1000) of the permanganate of potash. Dr. Berthold also indicates an efficacious method which is less troublesome than that of bathing with solutions. It consists in powdering the interior of the patient's socks with a powder composed of one part of salicylic acid and five of starch. This is, too, an excellent mode of treating the local sweating which in fat persons often takes place between the scrotum and the thighs, and if not arrested leads to a troublesome eczema, and its accompanying pruritus.—*Med. Times and Gaz.*, August 4, 1877.

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Death from Milk in the Trachea.—At the Geneva Medical Society, Dr. Odier related (*Lyon Méd.*, June 24) the case of a boy about four years of age, who, while taking some milk at table, sank his head and became suddenly pale, death taking place in two or three minutes without struggle or cyanosis. At the autopsy a small fragment of bread was found in the epiglottis, and at the bifurcation of the bronchi there was also found a little bread softened with milk, but which in no wise obstructed the bronchi. A little lower down in the bronchi there were also fragments of the same of the size of a pin's head. Death in this case must have taken place from syncope, and not from suffocation. The heart and lungs were quite healthy, and there were neither subpleural ecchymoses nor bronchial foam. Dr. D'Espine referred to the rapidity with which asphyxia occurs in children who have undergone tracheotomy on the escape of the canula, so that death is imminent unless this be instantly replaced. Dr. Juillard met with the case of an infant at the breast found dead in its cradle. Some coagulated milk was found in the trachea, but not in sufficient quantity to produce obstruction. Dr. Prévost believed the mechanism of death in these cases is similar to that produced in animals by stimulating the central end of the inferior laryngeal, which arrests the diaphragm and respiration. In these cases there may be a similar reflex action due to the foreign body conjoined with the spasmodic element.—*Med. Times and Gaz.*, June 30, 1877.

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Death from Chloroform.—A death from chloroform occurred at the Toronto General Hospital on July 18. A woman, aged twenty-five, was about to be operated upon for some uterine trouble, and but a few drops of the anæsthetic had been given when she suddenly died. She had taken chloroform previously and had no unpleasant symptoms. At the *post-mortem* fatty degeneration of the right ventricle was assigned as the cause of death. —*Canadian Journ. of Med. Sci.*, Aug. 1877.

The *British Med. Journ.* for August 4 reports the death from chloroform of Sarah Crudge, aged 23. The anæsthetic was administered for an operation for strabismus.

—

Colour-blindness among Railroad Employés.—An optical examination has been ordered by the Minister of Ways and Communications, at St. Petersburg, of all persons connected with Russian railways, in order that their power of distinguishing colours may be tested. It appears that this order has been issued in consequence of the startling results lately obtained from a similar examination of railway *employés* in Finland.—*Med. Examiner*, July 19, 1877.

We hope that railroad managers in this country will immediately profit by this experience and example.

—

Dr. Lewis A. Sayre in London.—We learn from the English journals that Dr. Sayre has been giving demonstrations at the London hospitals, of his mode of treating Pott's disease, and lateral curvature by suspension and fixation. The *Lancet* (July 14) says: "We are not blind to the fact that much of the success obtained is due to Dr. Sayre's own rare mechanical and manipulative skill, but his principles are as sound physiologically as their application is mechanically expert, and we thank him most heartily for the trouble he is taking in England to illustrate and enforce them."

—

Dr. Edward Warren.—Dr. Warren (Bey), of Paris, formerly of North Carolina, has just received the Cross of Chevalier of the Order of Isabel the Catholic, as a recognition of his professional services to Spanish personages.—*Lancet*, July 14.

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PART II. DISEASES AND TREATMENT. Sec. I. Examination of Patients. Chap. I. Instruments, and Methods of their Employment. Chap. II. Sound, Hearing, and Tests of the Latter Sec. II. Auricle. Chap. I. Organic Defects and Cutaneous Diseases. Chap. II. Morbid Growths and Injuries. Sec. III. External Auditory Canal. Chap. I. Circumscribed and Diffuse Inflammation. Chap. II. Foreign Bodies in the External Ear. Chap III. Results of Inflammation and Injury. Sec. IV. Membrana Tympani Chap I. Acute and Chronic Inflammation. Injuries and Morbid Growths. Sec. V. Middle Ear. Chap. I. Acute Catarrhal Inflammation Chap. II. Chronic Catarrhal Inflammation. Chap. III. Treatment of Chronic Catarrhal Inflammation. Chap. IV. Unusual Diseases of the Middle Ear. Chap. V. Acute Purulent Inflammation. Chap. VI. Chronic Purulent Inflammation. Chap. VII. Course and Consequences of Chronic Purulent Inflammation of the Middle Ear. Chap VIII. The same, continued. Sec. VI. Diseases of the Internal Ear. Chap. I. Primary and Secondary Inflammation. Chap. II. Morbid Growths of the Auditory Nerve. Sec. VII. Deaf Mutes and Partially Deaf Children. Chap. I. Diagnosis and Treatment of Deaf-mutism and Partial Deafness in Children.

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CLINICS.

CLINICAL LECTURES.

Clinical Lecture on the Reduction of Strangulated Hernia. Delivered at St. George's Hospital, by TIMOTHY HOLMES, F.R.C.S., Surgeon to, and Lecturer on Surgery at St. George's Hospital.

We have had two cases of strangulated hernia in this hospital within the last week, one of which was reduced without an operation, and the other by extra-peritoneal operation. I propose to-day to speak to you first of the causes of difficulty in reduction, and then of the ways in use for facilitating it.

The main causes of difficulty in reduction are, first, the sudden forcing out of a coil of bowel through a small ring, the bowel afterwards becoming inflated by secretion of gas and fluid. The same may happen with omentum, which becomes congested with blood and thickened by extravasation, and so swollen. Many herniæ are thus strangulated which, though of the congenital form, occur non-congenitally, and many non-congenital herniæ of sudden formation. The next cause of the difficulty in reduction is some irritable condition or spasm of the muscles connected with the hernial aperture. Then we have changes in the contents of the tumour from secretion into the bowel, or from accidental malposition or implication of the contents with each other. These are cases in which reduction is exceedingly difficult, and in many cases is entirely impossible, unless the sac be opened

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Other herniæ become irreducible in consequence of irritation or swelling, or commencing inflammation, or actual inflammatory change and matting together of the tissues which either form the ring or the neck of the sac, or both of them. Here is a beautiful specimen in which the hernia was reduced *en masse*, and in which the patient in consequence died with the strangulation still unrelieved, and you may see quite distinctly that the strangulation is in the sac itself. In a case of that kind reduction by operation would obviously have been utterly impossible except by opening the sac. Then, again, there are cases in which the hernia is, in all probability, entirely irreducible, in consequence of chronic changes in the omentum which forms the hernia. This has, perhaps, been in the sac for years, and the patient has either worn no truss at all, or, what is still more likely, and still more unfortunate, he has worn an ill-fitting truss upon the projecting hernia, and in that way has irritated it, and has caused it to become enlarged and thickened, and so irreducible. Here, again, is a hernia in which the contents of the sac are irreducible in consequence of adhesions which have formed between the omentum and sac. The sac and hernial contents have formed an organic connection, and nothing except the division of these bands of organized adhesions can by any possibility enable you to reduce the hernia. And here, too, is another case of a still more formidable nature, which I remember occurred in my practice when assistant surgeon here—a case of enormous inguinal hernia which had been for many years irreducible; a portion became strangulated, and very difficult indeed it was to see which portion it was in which the strangulation existed. But you see a number of coils of intestine all adherent to each other, and to the sac, so that no dissection which it was justifiable to undertake would have enabled one to reduce the intestine into the belly. These preparations and observations illustrate to you the main causes of irreducibility in strangulated hernia. You must remember that irreducibility and strangulation are different, but I am not going into that subject now. I am speaking of cases in which the hernia is both strangulated and irreducible, and the obstacles to reduction are mainly those which I have pointed out.

Now, with respect to the methods by which surgeons endeavour to meet these obstacles. The taxis is of course the thing first employed. I will not go into the question of position—of turning patients on their head, etc. All this seems to me to depend upon an entire, I will not say ignorance, because that would be rude, but an entire forgetfulness of the obstacles which there are to reduction. Gravity is no serious obstacle to reduction. I do not think putting a man on his head makes his hernia a bit more reducible than putting him on his heels. It does not appear to me that you get any advantage by raising the feet, still less by raising the whole body up altogether so that the man stands on his head; because though you certainly may get some slight advantage from the traction of the bowels which are inside the belly pulling down the bowel outside it, yet you lose a great deal more from the spasmodic condition into which you throw the muscles of the lower extremity and the abdominal wall. It seems to me an entire mistake to waste time upon any of these things. The taxis is the plan which you have first to employ, and that of course aims at neutralizing the first of the obstacles that I mentioned. When the bowel or the omentum has been suddenly protruded through the ring as I have said, the first effect of strangulation upon it is to cause a great increase of bulk by the secretion of air and fluid into the bowel, by the secretion of exuded matters into the tissue of the omentum, and by the detention of blood in both of them. Your object is by gentle pressure to empty the bowel of air and fluid, to empty the vessels of blood, and to push back some of the contents of the hernial tumour through the ring; and the first thing that enables you to be certain that you will succeed in that, is feeling a little air or fluid gurgling back into the cavity of the abdomen. You saw a case a few days ago of a young man who had had inguinal hernia some time, and had not taken much notice of it, till on some violent exertion the inguinal hernia protruded, and at once became acutely strangulated. He was brought in here in great pain. A good deal of vomiting had taken place before admission, and in fact things looked rather bad. There was a very tense tumour, without any impulse on coughing, but we succeeded quite easily in reducing it; by putting the man under chloroform and making gentle pressure, in the course of two or three minutes it went up. And I knew it would go up as soon as I began to handle it, by feeling a little air gurgling out of the hernial tumour into the abdominal cavity. In a case of that kind it would not have been justifiable, if I had failed to reduce it, instantly to have gone on to operation. It seemed to me the strangulation, although acute, was so recent and the symptoms altogether so incipient, that I determined, if I failed in reducing it, to have put him into the warm bath, and to have waited, at any rate, a good many hours, and to have made renewed attempts at taxis, before proceeding to operation. Taxis is very much assisted by chloroform, and I think much more assisted by chloroform than by ether. I do not myself recognize that very great difference in the danger of anæsthesia from chloroform and from ether which some surgeons profess to feel. It seems to me that complete surgical anæsthesia is always a dangerous thing, whether produced by chloroform or ether; and I think chloroform produces so much more complete relaxation, and that so much more speedily, that it is very much more convenient in the reduction of dislocations and strangulated hernia.

But although our horror of repeated manipulation in attempting taxis may have been a little exaggerated by cases which we have seen of severe injury to the intestine by the taxis—cases which I would venture to hope are somewhat exceptional—at the same time I do not think that too prolonged or too frequently repeated efforts at taxis are desirable. I think that Professor Gross, of Philadelphia, has erred somewhat on the other side in stating that almost all herniæ may be reduced by repeated manipulations. It seems to me that when vomiting is distinctly declared, and has turned from bilious vomiting into vomit mixed with the contents of the small intestine—what is sometimes called fecal, although it is not fecal, but where the vomit has turned from the green colour of bilious vomiting to the dirty brown of the contents of the small intestine—then you had better not wait any longer; if you cannot by a renewed attempt at taxis reduce the hernia, you must operate. But that is an interval which allows you a considerable amount of time. You do not, usually speaking, get that condition of things until after twenty-four hours of strangulation, and if you have the patient under your care during the whole of that time there is no reason why you should not put him once, if not twice, under the influence of chloroform, and attempt taxis. Besides, you should put him into a warm bath for a considerable time, or apply fomentations for several hours before you begin to think of the *ultima ratio* of an operation. Ice is frequently used, but seems to me to be very seldom of any use, except in those cases of inguinal hernia in which the tumour is voluminous and evidently contains hardly anything except intestine, and that very much distended with air. In these cases you will find the application of ice of considerable utility.

There is another method that has been proposed for the reduction of hernia, and that is by the aspirator. Dr. Dieulafoy spoke of the aspirator at first as being almost free from danger in these cases; but that certainly seems not to be the case. The object of the aspirator is to empty the bowel, or sometimes you do not perhaps puncture the bowel, but merely empty the sac; more generally you puncture the intestine, and draw off a good deal of gas and a certain quantity of fecal fluid. The puncture in the intestine will be but small. It will be immediately closed by the slipping upon each other of the three coats of the intestine, so that when the aspirator is withdrawn the intestine will no longer have a hole in it. The three holes in the three coats will not correspond, and you can very frequently reduce the hernia afterwards. It has appeared to us at this hospital to be a method which is dangerous, and so doubtful that we have not as yet ventured upon using it; but at the same time it has been used elsewhere in many cases, and its use would be most indicated in the case of a voluminous hernia in which ice is used. So much for the ordinary methods of reduction which precede the application of the knife.

The warm bath has been lately disused at this institution; at least I think I am right in saying so. I certainly have not used it for some years. Sir James Paget, however, recommends it to be used "in all cases that are not very bad;" that is to say (as I think he explains in another passage) in all cases in which you do not think the operation is absolutely indispensable at that moment, and in many of these cases you would not use taxis at all. In many cases in which you think the case is so bad that an operation cannot be put off even a few minutes, you would also think the matter had gone on so far that you had better not handle the gut in any way. The best way is to cut down into the sac at once and investigate the condition of things. It certainly appears to me that Sir James Paget is right in that respect, that in most of these instances you wait a few hours, and if you wait a few hours I cannot help thinking the patients sometimes are a good deal relieved; the muscular spasm is considerably relaxed, and the hernia made very much more reducible by the old method of applying a warm bath, and I must say I rather regret it has so much gone out of fashion at this hospital. I will try at any rate in my own practice to bring it in again. Our plan when I was a student used always to be to put the patient into a hot bath, make him entirely faint, and then try to reduce the hernia. Sir James Paget directs you to use the bath only moderately warm instead of hot. I confess the old plan still seems to me the best. One knows the extreme relief that the hot bath pushed to faintness gives in cases of descent of a stone from the kidney, and also in the case of a gall-stone; and we have often seen the same relief in cases of strangulated hernia.

Now I come to the main point, about operations with or without opening the sac. The case I have to direct your attention to to-day is that of a woman, æt. 50, a laundress, who was admitted with a strangulated femoral hernia on the evening of the 6th June. She was very well nourished, and had never had anything serious the matter with her before. Three years ago, while working hard at her occupation, she felt a sudden pain and found a hard swelling in the right groin. She kept her bed two or three days, and the swelling disappeared, and she thought no more about it. On the evening of the 5th of this month she went out for a long walk, over-exerted herself, came home, went to bed, and found a swelling again in the right groin. She began to have frequent attacks of vomiting, and was admitted into the hospital. I was sent for, but by accident I did not receive the message, and did not see her till the following morning. She had had frequent attacks of vomiting; the substance vomited was of a dark green colour, at first solid, that is to say mixed with food, but afterwards much more watery, showing the commencement of copious secretion from the bowel. On seeing her, and failing to reduce the hernia under anæsthesia, it was obvious that the best thing was to operate without further delay. On cutting down on the sac I found I could pass a director underneath Gimbernat's ligament with great ease, and thought I would try the effect of Petit's operation, which consists in dividing the parts external to the sac, where you can find them most tense. This part in a femoral hernia will be pretty sure to be Gimbernat's ligament, the deep crural arch, and the upper cornu of the falciform opening, which three structures meet together at the upper aspect of the femoral ring. When you can find a tight band lying outside the sac in that situation, an incision will liberate those three great ligamentous structures, and you can then sometimes succeed in reducing the hernia. That was the case in this instance. On making an incision and passing up the finger so as to see that the ring had been entirely free from constriction outside the hernial sac, the tension disappeared, and very slight manipulation succeeded in putting the bowel back. That was on the 7th. The patient had no symptoms at all except slight vomiting after the operation, due merely to the influence of the ether. She had a tolerably good night. There was a little retention of urine, which is so common in women after operations for hernia. A little suppuration occurred in the small wound made, but that was of no importance whatever, and on the 11th, as she was suffering from a good deal of distress from constipation and foul tongue, I gave her a slight aperient, three grains of calomel, followed by a common injection. The bowels operated immediately, and she has since been perfectly well. The wound is beginning to heal rapidly, and she may be pronounced to be out of danger.

That is a very simple example of the extra-peritoneal operation. It is an operation you do not often see here, and I think a somewhat erroneous view, but a view that I cannot say is very erroneous prevails as to our treatment in this hospital. It is said in many quarters that the extra-peritoneal operation is never performed here. That is not true, because I have a note here of seventeen cases in which it has been performed; but it is perfectly true that it is very rarely performed, and the rarity may be judged of in this way. Mr. Haward wrote a paper on this subject in the first volume of St. George's Hospital Reports (1866). I had written a paper some time previously, with Mr. Cooper, showing that out of 121 cases of strangulated hernia in four cases the operation without opening the sac had been performed, and I see all four cases were under Mr. Cutler's care, and all recovered. When Mr. Haward wrote, the number had risen up to 181 cases, and the number of cases without opening the sac only up to six. Again, I wrote a paper in the second volume of the Hospital Reports based upon the notes of 200 cases of operation and then as many as fourteen had been operated upon without opening the sac. And now, when we have had about 374 cases of strangulated hernia, I find seventeen have been operated upon without opening the sac. You see, then, that the operation is rarely practised in this institution, and I must say I do not quite understand why this is so, except from the tendency to routine; for our experience in this operation has been remarkably successful, if you compare it with the ordinary experience of strangulated hernia. Of these seventeen cases of hernia, one was umbilical, and strangulated umbilical hernia is a peculiarly fatal form. That one case died. The cause of death was supposed to be peritonitis, though I believe no opportunity was afforded for post-mortem examination. Of the other sixteen cases only two died. One, which was a case of inguinal hernia, under Mr. Henry Lee's care many years ago, died of suppuration in the scrotum and I think erysipelas, that is to say of one of the ordinary complications of wounds and of nothing specially connected with hernia. The other case, also under Mr. Henry Lee's care, a case of double femoral hernia, died from peritonitis, verified by post-mortem examination. Those are roughly the heads of our statistics of operations for strangulated hernia without opening the sac. There are very few of them, only seventeen, and I think one might exclude the case of umbilical hernia, because umbilical stands on quite a different footing from femoral and inguinal hernia; and if you do so, you see that of sixteen cases of inguinal and femoral hernia operated upon, only two died. That is very different from the statistics of ordinary operations for strangulated hernia, for from 1852 to 1877, 357 cases have been operated upon, in which the sac was opened; and of these 218 recovered, and 139 died. Whilst our operations without opening the sac have given only one death out of eight, in the others the deaths have been more than one-half of the recoveries. I do not say that is a fair comparison, and none of these statistical comparisons are fair, because they omit to take into consideration that which is the essence of the whole thing, namely, what were the circumstances of the case. Of course, these sixteen cases I have been speaking to you about, in which the sac was not opened, were the most promising cases, and in most of them recovery might have been anticipated from the beginning. They were cases in which the symptoms were not very acute; there was really no very great hurry about the matter, and many people would have said it was doubtful whether, after all, the hernia could not have been reduced by taxis. At any rate, they were the most favourable specimens, whereas all the unfavourable specimens go into the other category. You will find the same objections might be made to all statistics which are not based upon notes of cases, for surgical statistics not based upon notes of cases are absolutely worthless if you intend to found any definite practical conclusions upon them. That was the vice which was so patent in the statistics on which Sir James Simpson ventured to found a charge of general unhealthiness against all London hospitals, a charge which was absolutely untrue; it was founded upon nothing except a mass of figures not supported by notes of cases, and figures under such circumstances seem to me merely misleading.

In order to settle what the value of this operation without opening the sac would be, you would want a long series of cases of hernia of about similar gravity—fifty on either side might be sufficient. Say you had fifty cases in which the strangulation had not lasted over forty-eight hours, all treated by the extra-peritoneal operation, and you had to compare them with another series of the same gravity, treated by the intra-peritoneal operation; if you could see that the mortality after the intra-peritoneal operation was not greater than the mortality after the extra-peritoneal operation, say they were both one in eight, then I should say you had succeeded in showing that there was no importance whatever in the matter, that whether you opened the peritoneum or not was of no importance, and every surgeon would say, "It is safer to open the peritoneum and look at the bowel." But that has never been done yet, and until it has been done this matter will not be settled. If you read Mr. Haward's paper, which is a most interesting one, and which is by far the most able argument I know of in favour of the course pursued in this hospital, you will see what advantage he attributes to the operation of opening the sac. He says, "The foregoing remarks demonstrate, I think, that the advantages of the operation in which the sac is opened are certainly greater than those which pertain to that in which that structure is not incised." He argues frankly in favour of opening the sac in all cases, attributing to the intra-peritoneal operation the following definite advantages: "1. That the condition of the intestine can be accurately determined, and that therefore there is less danger of returning a gangrenous intestine; 2. That it insures the detection of constriction of the bowel by adhesions, omentum, or thickening of the sac; 3. That the fluid in the sac escapes externally, instead of being pressed into the abdomen; 4. That there is less danger of wounding the intestine; and, lastly, that it is less fatal." Those are the conclusions to which he comes with respect to operations by opening the sac as compared to the operation without opening the sac; but I confess it does not seem to me, with all possible respect for Mr. Haward, and fully allowing, as I do allow, that our operations by opening the sac are as good in their results as those of other institutions, from which a long series of extra-peritoneal operations have been published, it does not seem to me to settle the question; it does not seem to me you can settle the question till you have got the notes of cases compared as I have suggested, that is to say, similar cases treated differently. You could then see whether in each series composed of similar cases the mortality would be greater or less; and I undertake to say that the mortality of the extra-peritoneal series would be less. At least I am very strongly impressed in the cases which I have seen with the simplicity of the extra-peritoneal operation, and the utter absence of complications of all kinds; so that I cannot help thinking it must be less dangerous in cases to which it is suitable, and if I had the task imposed upon me of answering this paper of Mr. Haward I should say in the first instance, that it is true that the condition of the intestine can be more accurately determined by opening the sac; but that you ought never to employ the extra-peritoneal operation in any case in which there is the slightest reason to suspect gangrene or ulceration of the bowel. If the strangulation has lasted long enough to justify you in thinking about gangrene, you ought never to perform Petit's operation. The second consideration urged by Mr. Haward—viz., that the surgeon is able by opening the sac to detect constriction of the bowel by adhesions, by omentum, or thickening of the sac, is also true; but it is equally true that you cannot reduce the hernia when it is in that condition without incising the sac, at least you cannot reduce it without an amount of violent pressure which is altogether wrong. If you look at the lecture of Sir James Paget on this subject in his recently published Clinical Lectures, you will see there some very good observations upon the fact that if you find any difficulty in reducing the bowel without opening the sac, you ought not to persevere in the attempt too long; if you do, you will in all probability set up a good deal of suppuration and inflammation around the sac, as well as do other and graver mischief. I believe it has been known that the bowel has been ruptured in these cases. The second observation of Mr. Haward, then, is perfectly true; but it may be met by saying that you ought not to insist upon the operation with so much violence as to run any risk in your attempts at reduction. Then, as to Mr. Haward's third argument, that the fluid in the sac escapes externally instead of being pressed into the abdomen. Since Mr. Haward started the idea, it has been made use of as a main argument in favour of the operation by opening the sac. It is said you let out all the foul fluid that is in the hernial sac, whereas, if you operate without opening the sac, you reduce that along with the other contents of the sac into the peritoneal cavity, at the risk of setting up peritonitis. I confess that I can hardly bring myself to believe in the danger of pressing back the fluid in the hernial sac, because I have seen a great number of cases in which the hernia has been reduced by taxis after a length of constriction quite as great as that in which the extra-peritoneal operation has been used, and in these cases no peritonitis took place. Peritonitis hardly ever takes place after the reduction of hernia by taxis; it does sometimes, but very rarely. I have noted one case in the Hospital Reports, and I think it is the only one I ever saw in which, after the successful reduction by taxis of a hernial tumour, peritonitis set in and proved fatal. The rarity of such cases proves that there is seldom little danger in reducing the fluid along with the bowel. After all, the fluid is but the secretion of the bowel; and if there is no danger in reducing the bowel, why should there be any danger in reducing the fluid. It will be soon absorbed. It does not seem to me that this idea is supported by experience. Then, Mr. Haward says that there is less danger of wounding the intestine, and that is also the conclusion of Mr. Hancock; but I cannot think that there is much danger of wounding an intestine in operating outside the peritoneal cavity. There ought to be really more danger in operating inside the cavity. A little care will usually succeed in keeping the bowel and everything else entirely out of the way, and, as a fact, wound of the bowel is very rare in any form of operation.

Then, to say that the intra-peritoneal operation is less fatal seems to me to be just what you want to prove. It is not proved, I think, by the statistics that Mr. Haward produces. As those statistics are my own, I am bound to speak of them with a certain amount of respect; but they only show, that in a long series of cases mixed up altogether, the percentages were about the same—about thirty per cent. in one case, and thirty-three in the other. That does not show to me that one operation is less fatal than the other; it only shows that there is no very great difference. It does not show anything accurately with respect to the treatment of given cases. I must say my own feeling is strong in favour of using this operation more freely than we have done; for we have been a little led away from the true point, which is not whether it would make any vast difference in the statistics of a long series of cases but whether it would save a few lives. If you restrict Petit's operation to those cases of strangulated hernia in which the symptoms are less grave, in which the strangulation has lasted only a short space of time, and in which there is no reason to apprehend any serious mischief to the bowel, I rather think you would succeed in the course of some years in saving a few lives which might be lost by peritonitis following upon the opening of the hernial tumour. That is my own impression; but I only give it you for what it is worth, having no very extensive experience of the operation, and I would say, having been taught entirely the reverse doctrine. I shall therefore be disposed, in whatever opportunities happen to come before me, to employ Petit's operation more freely, and make it the rule than the exception, of course restricting it to the cases I have just mentioned. —*Med. Examiner*, July 26, 1877.

HOSPITAL NOTES AND GLEANINGS.

Tumour of the Lower Jaw removed without External Wound.—Ellen M., aged 33, was admitted into Mr. MAUNDER'S Ward, at the London Hospital, on June 4. About December last, the patient first noticed a small swelling of the gum, near the back teeth, on the right side of the lower jaw. She thought it was merely a gumboil; it was neither tender nor painful, and its colour was of a reddish tint. When the tumour had been growing for about two months, the patient sought advice of her doctor, who strangulated it with catgut, and a piece of the growth came away. This operation was performed a second time, and another piece removed. After this two decayed teeth were extracted. The skin opposite the seat of the tumour had been painted three times daily with tincture of iodine, which seemed to retard the growth. The mass was always hard, and the patient could even masticate portions of her food on this side. Occasionally it bled a little.

On admission, the right cheek of the patient bulged outwardly, and, on looking into the mouth, a reddish growth, the size of a large walnut, occupying the site of the molar teeth, was visible. It was painless, hard, and smooth, much resembling gum-tissue.

On June 6, the patient being under the influence of an anæsthetic, and conveniently placed in a dentist's chair, the mouth was held open with a gag. A knife with a rounded end, guided by the tip of the left forefinger, was made to divide the soft parts over the anterior margin of the ramus just about its junction with the base of the bone, and then the periosteum and muscular attachments on both sides were separated with a raspatory. The bone was next partially divided with a small saw, and the section was completed with cutting forceps. The second bicuspid tooth, displaced by the growth, was now extracted, and the body of the bone was cut perpendicularly at this spot by means of the saw and the forceps. After the knife had been passed along both sides of the fragment to divide the mucous membrane and other structures down to the bone, the raspatory and forefingers then completed the operation. Thus the tumour and fragment of bone, stripped of the periosteum, came away in one piece. The facial vessels were not divided, and the bleeding was unimportant, no artery requiring ligature.

Remarks.—Mr. Maunder said such was the usual history of a case of fibrous epulis. It was benign, but recurred unless the bone surface whence it grew was also removed. Further, the growth was generally pedunculated, but in this instance it was sessile. Seven years ago (March 9, 1870) he had, he said, demonstrated in that theatre the feasibility of removing, without external wound, large lateral portions of the lower jaw, the seat of tumour. The patient on that occasion was ten years of age, referred to him by Mr. Owen, of Leatherhead. From that child he had taken away an extent of bone comprised between the middle of the left ramus and the site of the right canine tooth. The second case similarly treated was sent up by Dr. Dove, of Pinner. Both patients have since been often seen in capital health, and he felt justified in stating "that the practice of our art will have one horror less for a patient, who can be assured that no unsightly scar will disfigure his face." He need scarcely suggest that the face of the female should be most scrupulously saved from disfigurement. Neither was it necessary to point out the distinctive characters of the above operation as compared with that of a comparatively trivial kind for the extraction of a sequestrum already nearly accomplished by nature. Fifteen years ago he had seen the late Mr. John Adams remove the whole lower jaw in a state of necrosis; and three years ago he (Mr. Maunder) had taken away in one piece rather more than the body of this bone, necrosed. Both patients were getting new bone generated as a substitute for the original, at the date of operation.—*Lancet*, June 23, 1877.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

The Climate of Southern California.—According to a correspondent of the *Boston Medical and Surgical Journal* (Sept. 13, 1877), Southern California, and particularly the Ojai Valley, offers to invalids the following advantages: 1, mildness of temperature; 2, equability of climate; 3, dryness of atmosphere; 4, sheltered situation; 5, freedom from malarious diseases; and 6, plenty to amuse and interest visitors.

Deaths from Chloroform.—In the *Cincinnati Medical News* for August Dr. S. P. CUTTER, of Memphis, Tenn., gives the details of the death of Dr. Jourdan, who died while having an eye extirpated under the influence of chloroform.

The *Toledo Medical and Surgical Journal*, August, 1877, reports a death from chloroform in the Homœopathic Hospital of Toledo. The subject was a boy, aged 12, who was undergoing an operation for talipes.

American Dermatological Association.—The first annual meeting of this Society was held at Niagara Falls, September 4, 5, and 6. A number of unusually interesting papers were read and the following officers were elected for the ensuing year. President, James C. White, M.D., of Boston; Vice-Presidents, Drs. C. Heitzmann and L. Duncan Bulkley, of New York; Secretary, R. W. Taylor, M.D., of New York; Treasurer, Dr. J. E. Atkinson, of Baltimore.

The next meeting will be held at Saratoga on the last Tuesday of August.

Endowment of the Chair of Surgery in the University of Pennsylvania.—The widow of the late Dr. J. Rhea Barton, of Philadelphia, has endowed with fifty thousand dollars the chair of surgery in this institution. The professorship will hereafter bear the name of the distinguished surgeon to perpetuate whose memory this liberal gift was made.

OBITUARY RECORD.—Died at Ann Arbor, on August 6th, from phthisis, ABRAM SAGER, M.D., late Professor of Obstetrics and Diseases of Women and Children in the Michigan University.

Dr. Sager was born at Bethlehem, New York, in 1810, pursued his medical studies at Albany and New Haven under Professor March and Ives, and graduated in 1835. In 1848 he was appointed to the Chair of Theory and Practice of Medicine in Michigan University, and in 1850 he was transferred to the Chair of Obstetrics. In 1875 he severed his connection with the University on account of the establishment by the regents of chairs for the treating of homœopathy in connection with the medical department of the University. In 1876, Dr. Sager was unanimously elected President of the Michigan State Medical Society—a compliment which was no doubt intended as an indorsement by the profession of his State of the high-minded and exemplary course which he pursued amid those troubles which culminated in the resignation of his professorship.

FOREIGN INTELLIGENCE.

Migraine.—In order to alleviate pain in the course of an attack of migraine, or to cut it short at the commencement, Delioux recommends the juice of a lemon to be squeezed into a cup of coffee without milk or sugar, and drunk off at a draught.—*Med. Times and Gaz.*, Aug. 25, 1877.

The Treatment of Sciatica.—Dr. Flemming gives, in the *Berlin. Klinische Wochenschrift*, the results of his experience of forty cases of sciatica by means of the sand-bath. The patient is placed in a kind of trough, and the affected limb is surrounded by sand, at a temperature of 100° Fahr. or more, for half an hour; after this, a warm-water bath is administered. Recovery is stated to take place, upon the average, after twenty-four sand-baths.—*Lancet*, Sept. 1, 1877.

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Effects of Pilocarpin.—Dr. Popow (*St. Petersb. Méd. Woch.*, Aug. 4) reporting upon the results derived from the hypodermic injection of pilocarpin in men in health and suffering from fever, and in experiments upon animals made in Prof. Suschtschinsky's laboratory, comes to the following conclusions: 1. Pilocarpin produces the same effect as an infusion of the leaves of jaborandi; 2. An injection of from 0.01 to 0.02 gramme induces abundant sweating, without causing the unpleasant effects (giddiness, vomiting, cephalalgia) produced by jaborandi, and is, therefore, better suited for therapeutical employment; 3. The temperature diminishes without any prior exaltation, from one hour and a half to four hours, and reaches its minimum soon after the cessation of the sweating; 4. The increased excretion of saliva is observed alike in the healthy and the sick after doses of from 0.001 to 0.015 gramme. Sweating only occurs in such doses in the healthy—fever patients, *e. g.*, typhus, requiring 0.02 gramme; 5. The quickening of the heart's action produced by the pilocarpin continues a pretty long time after small doses, but when large ones are employed this is soon replaced by retardation; 6. On the direct introduction of pilocarpin into the veins a retardation of the heart's action takes place suddenly without any prior acceleration; 7. Doses not exceeding 0.03 gramme do not exert any particular effect on the alimentary canal; but large doses (0.05 to 0.10 gramme) induce purging or even bloody stools, with intestinal movements and the development of gases.—*Med. Times and Gaz.*, Aug. 25, 1877.

Morphia Injections in Puerperal Convulsions.—Dr. Dietrich relates (*St. Petersb. Med. Woch.*, July 28) two cases with a view of encouraging the more frequent resort to subcutaneous injection of morphia in puerperal convulsions. In these cases recovery rapidly followed the injection of a quarter or one sixth grain of the hydrochlorate, a repetition being required in one of these.—*Med. Times and Gaz.*, Aug. 25, 1877.

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Treatment of Chronic Pharyngeal Catarrh.—Some time ago M. Michel recommended the employment of the galvano-cautery for the treatment of chronic pharyngeal catarrh. The plan has been practised by Riessenfeld in fifty cases, in none of which, however, was there any follicular enlargement. The battery used was that constructed by Middeldorpf, to one electrode of which a knife-shaped instrument was attached, and a series of strokes were made over the tonsils and uvula, the number varying with the severity of the case. The patients bore the operation in all instances exceedingly well, the only inconvenience complained of being the odour of the burnt membrane. Care must always be taken that neither the electrodes nor the conducting wires come into contact with the side of the tongue, lest it should be burnt. The operation is sometimes followed by a little difficulty in swallowing, and the patient should always be directed to gargle the throat frequently for a day or two, and take only fluid nourishment. The eschar becomes detached in the course of four or five days, and the suppuration, if any, rarely lasts more than a week. In the slighter cases a single application of the cautery is sufficient, and even in the worst cases M. Michel has never found it requisite to apply it more than five times.—*Lancet*, Aug. 11, 1877.

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Electrolysis in Aneurism of the Arch of the Aorta.—In the *Bulletin de Thérapeutique* for July 15, M. Dujardin-Beaumetz, of the St. Antoine Hospital, relates the first instance in which electro-puncture has been employed for the cure of aneurism of the aorta in France. Bringing his report down to July 10, he says that a certain amount of the blood in the tumour has become coagulated, but the layer of coagulum thus produced is of slight extent. He proposes repeating the applications at intervals of a month, under the somewhat sanguine expectation of producing the eventual complete coagulation of the tumour.—*Med. Times and Gaz.*, Sept. 1, 1877.

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Alcohol Dressings in Wounds of the Scalp.—Prof. GOSSELIN, in a recent clinical lecture (*Gaz. des Hôp.*, Aug. 2), called attention to a patient with an extensive contused superficial wound of the scalp, unaccompanied by detachment or denudation. He did so because it was an example of the rapid healing of such wounds which has been so frequently observed under dressing with pure alcohol, without the development of any diffused or erysipelatous inflammation. The rapid cicatrization that takes place is not the result of healing by the first intention, for the edges of the wound still remain a little apart, while the lips and bottom of the wound give issue to sanguinolent seropurulent secretion, in nowise resembling good pus. This secretion gradually ceases, and the wound becomes dry without ever having been covered with granulations. This instance is a good example of the cases which have for some time attracted Prof. Gosselin's attention, in which wounds are healed by this intermediate mechanism, which is neither immediate cicatrization, nor cicatrization after granulation and suppuration. This mode of cicatrization in wounds of the head especially occurs when these are dressed with pure alcohol; other modes of dressing requiring the formation of granulations for healing. Whatever this dressing may be with regard to other parts of the body, in wounds of the head it seems to be that which gives the patient the most protection from consecutive accidents, and leads to the quickest cicatrization. So treated these wounds have less tendency to inflammation and suppuration, are cured quickly, and are less often attended with erysipelas and phlegmonous inflammation.—*Med. Times and Gaz.*, Aug. 18, 1877.

Spina Bifida treated by the Elastic Ligature.—Dr. BALDASSARE relates (*Annali Universali*, May) the case of an infant, eight months old, upon whom he operated for spina bifida situated at the base of the sacrum. The peduncle of the tumour was four centimetres in length. The largest circumference of the tumour measured twenty-two centimetres, its length (including the pedicle) being eleven centimetres. Fluctuation and transparency indicated its contents, and these were not influenced by respiration and only slightly so by compression. The tumour became somewhat more tense in the erect posture. Compression was commenced on the pedicle by elastic ligature on November 30, and by the sixteenth day, the tumour being then in a grangrenous condition with the pedicle reduced to a centimetre in circumference, it was removed by the bistoury, leaving a small depressed space almost filled with granulations. On Jan. 7 the child was well and lively. A linear cicatrix occupied the place of the peduncle, and beneath this could be felt a resisting membrane occupying the place where the bone was defective.—*Med. Times and Gaz.*, Aug. 25, 1877.

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Thermo-Cautery in Lithotomy.—Thermo-cautery seems now to be the order of the day in Paris. At a recent meeting of the Société de Chirurgie (*Gaz. des Hôpitaux*, July 21), M. VERNEUIL stated that he had employed it in three cases of lithotomy with advantage. It is used, however, not for effecting the operation itself, but for the performance of its preparatory stage in order to discover the urethra more easily. Its employment, which is extremely easy, facilitates this very much, while it prevents urinary infiltration. Sometimes, however, a fistula persists for a long time, viz., for seven weeks in one of these cases, and three months in another. M. Anger observed that the track caused by the thermo-cautery is a very clean one, and greatly facilitates the penetration of the instruments into the bladder. The incision should be made by rapid strokes, which are to be followed by irrigation with cold water. In his case, although the wound did not cicatrize for thirty days, no urine had escaped after the tenth or twelfth day. The *passage* of urine over the wound, it is true, is not dangerous, but under the ordinary mode of procedure the different planes of the perineum are retracted irregularly, and *stagnation* of urine taking place, infiltration, or at the least maceration, of the wound may occur.—*Med. Times and Gaz.*, July 28, 1877.

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Oiling the Urethra.—M. Desprès (*Gaz. des Hôp.*, Aug. 4) has employed, like all other surgeons, various substances for greasing instruments intended to be passed into the bladder, but has often found, in spite of every precaution, that very painful friction is produced. Although not a partisan for injecting the bladder prior to lithotrity, experience has taught him that greasing the patient is a far more effectual procedure than greasing the instruments. For this purpose he injects, by means of a glass syringe, without any catheter, from seventy to eighty grammes of oil, and thus renders the passage of the instruments far less painful, these passing into the bladder, so to say, by their own weight.—*Med. Times and Gaz.*, Aug. 25, 1877.

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A Ready Method of Clinically estimating Urea in Urine.—Dr. Emerson Reynolds describes a new form of apparatus for the estimation of urea in urine by means of alkaline hypobromite. In his opinion Liebig's method of estimating urea afforded the most accurate results when carefully carried out, but the process is troublesome, and, therefore, unsuited for rough clinical purposes. On the other hand, the hypobromite process (which is but an improved form of the hypochlorite treatment long ago proposed by Dr. Davy) is undoubtedly that which most rapidly affords the desired results, although the latter have no pretensions to a high degree of accuracy. When strongly alkaline hypobromite of sodium is added to urine, pure nitrogen is evolved; this gas is almost wholly derived from the urea, which is known to yield up its nitrogen by this treatment, hence the volume of gas given off approximately measures the urea contained in the given specimen of urine. Various forms of apparatus have been proposed for collecting and measuring the nitrogen, notably those of Russell and West, Blackly, and more recently of Simpson and O'Keeffe, but all these involve the use of specially graduated measuring and other vessels, which are both expensive and not easily obtained. The process which Dr. Reynolds has arranged affords the desired results very rapidly, while the only measuring apparatus required is a common two-drachm minim-measure, which every medical man is supposed to have, and the rest of the apparatus can be fitted up at a very small cost (about 1*s.* 8*d.*), with materials very easily procurable.—*British Med. Journal*, August 11, 1877.

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The Lessons of the London Smallpox Epidemic.—The only uses of such an epidemic of smallpox as that which has raged for the last twelve months are to accumulate fresh evidence of the deadliness of the disease when left purely to nature; in other words, when not modified by vaccination. It is, indeed, pretty clear that no accumulation of evidence will have any effect on those who are not convinced already by the evidence of Marson and others. What is wanting in these cases is not evidence, but intellectual capacity. We say this in full remembrance of the fact that there are one or two gifted men among the enemies of vaccination. Still they have, to put it mildly, a defect or a peculiarity of brain which is not influenced by evidence. Nevertheless we must solemnly record the evidence as it reaches us from those who, in the faithful and painstaking discharge of the loathsome duties of a smallpox hospital, work it out. Though it will not affect the fanatical, it will satisfy those who have complied with the vaccination laws that they have reason on their side; not only so, but that their great security will be in being thoroughly vaccinated—not in a mere formal compliance with the vaccination acts—but in having arms well marked with vaccination scars.

The first instalment of information supplied by this epidemic reaches us from the

Homerton Fever Hospital, in the form of a report from Dr. Collie, the medical superintendent. He gives the result of 915 cases, from Dec. 8th to May 18th. From this it appears that the unvaccinated died at the rate of 53 per cent., the badly vaccinated at the rate of 26 per cent., the fairly well vaccinated at the rate of 2.3 per cent., and that no death occurred in any person under sixteen years of age who showed two good cicatrices of vaccination, and after sixteen only *two such persons died.* Dr. Collie's report is instructive, too, on another point much overlooked—namely, the troublesome and sometimes fatal complications and results of smallpox. We hear much from anti-vaccinationists of a few pimples that follow vaccination. But what of the things that follow smallpox? In 151 of the 915 cases there were boils; in 18 cases mania followed smallpox, of which 12 proved fatal; in 7 cases the eye was attacked with perforating ulcer, which often leads to blindness; in 24 cases there was inflammation of the windpipe, of which 8 died.—*Lancet*, Sept. 1, 1877.

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Spread of Disease through Laundries.—Though cleanliness is the best safeguard against disease, it is nevertheless an undoubted fact that clean linen is often the medium for propagating smallpox and other similar complaints. Under these circumstances the recklessness and ignorance displayed, not only by common washerwomen, but even by the managers of model laundries, are totally out of keeping with the progress we have achieved in other sanitary matters. The smallest rooms, the most unwholesome back kitchens, still seem good enough for the washing of linen; and the same is dried in passages frequented by the lowest class of persons, and hung between walls on which the dirt of ages has accumulated. The clothes that go nearest to the skin, that are the most likely therefore to introduce through the pores any germs that may fall on them, are thoughtlessly entrusted to a laundress without any inquiry being made as to the suitability of the place where they are to be washed. If they are taken to the suburbs it is simply because rents are cheaper in those districts; but there, as in town, clean and dirty clothes are brought into constant contact, and the washerwoman's family, perhaps also some of her assistants, sleep, eat, sicken, and die, with their customers' linen lying around about them. We have visited innumerable laundries, and what we describe is not the exception but the rule.—*Lancet*, Aug. 18, 1877.

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Deaths from Chloroform.—Two more deaths in consequence of the administration of anæsthetics have occurred during the past week—one at the London Hospital on the 11th inst., and one at the Royal Ophthalmic Hospital, Moorfields, on the 14th inst. That at the London Hospital occurred about midnight. A man applied with an irreducible paraphimosis. After several ineffectual attempts at reduction, which caused the man very great pain, Mr. Hovell, the House-Surgeon, asked one of his colleagues to administer choloroform. A very small quantity was given on a piece of lint. The patient was quickly under its influence. However, in about two minutes, the breathing suddenly ceased, his face became livid, and the pulse failed. Sylvester's method of artificial respiration was at once resorted to, and other measures were adopted, and failed. At the post-mortem examination the heart was found to be flaccid and dilated, and the muscular tissue fatty; it contained a little loose dark clot; there was no valvular disease. No other organic disease. The second death, at Moorfields, befell a woman, aged forty-six; she was extremely fat, and of slow intelligence. She had complained of shortness of breath on exertion, but was not known to be the subject of organic disease. She was to be operated on for senile cataract. A mixture of chloroform and ether, in a modified Clover's apparatus, was being administered by the House-Surgeon. From the commencement of the administration respiration was noticed to be shallow, but there was struggling. The pulse was feeble but not intermittent. There was some slight lividity of cheeks and forehead. Chloroform was at once removed, and a few whiffs of pure ether administered as a stimulant. Other means for restoring circulation were tried, but in vain; the patient died. At the post-mortem examination the heart was found flaccid and empty; the mitral valve was contracted, and the aortic valves were incompetent. Kidneys were fatty and granular.—*Med. Times and Gaz.*, Aug. 18, 1877.

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Death from Chloroform averted by the Inhalation of Nitrite of Amyl.—The *British Medical Journal* (Aug. 18, 1877) publishes, without giving the author's name, the following interesting communication. On the 9th instant, I was asked by a professional friend to administer chloroform to a patient of his, from whom he was about to remove a fatty tumour, situated in the left lumbar region. The patient in question was about forty-nine years of age, married, the mother of several children, of thin, spare habit, but otherwise in good health. She was nervous, and apprehensive of the result, entreating me not to give her too much chloroform. Having previously examined the heart and found all the sounds normal, I gave her about two teaspoonfuls of brandy undiluted; and after waiting a few minutes, and placing her in the recumbent posture, I commenced the administration. The chloroform I used was Duncan and Flockhart's, upon the purity of which we can always depend. I poured a measured drachm upon a piece of lint, enveloped in a towel. I held it some little distance from her mouth and nose, and let her inhale slowly. My friend noted her pulse, whilst I carefully watched the respiration. The first dose did not produce any effect, and I then used another drachm, which soon caused a good deal of excitement, incoherent talking, and struggling—the patient striving several times to snatch the inhaler from my hand. This gradually subsided, and she appeared to be passing into the third stage of anæsthesia, when she made an abortive effort to vomit, raised her head from the pillow, and, to my friend's great alarm, the pulse flickered and stopped altogether; she gave a gasp; foam gathered on her lips; her jaw became rigid; and to all appearance she was dead. I immediately withdrew the chloroform; my friend dashed some cold water on her face and pulled her tongue forward, whilst I commenced artificial respiration, after Marshal Hall's method, but without success. We then poured some nitrite of amyl on lint, and held it to her nostrils. In such emergencies, it is impossible to judge the flight of time correctly; but I should say in ten seconds there was a flushing of the face, the pulse was again felt, and, to our great joy, the all-important function of respiration was again restored; the woman being rescued apparently from the very article of death. After a time, the anæsthesia seeming tolerably profound, my friend proceeded to remove the tumour, which he did in a rapid and skilful manner, whilst, as the patient grew restless, I gave an occasional whiff of chloroform. It proved to be an ordinary fatty tumour. Only one small vessel required to be ligatured. The wound has since healed rapidly, and the patient has made a good recovery. In looking at the order of symptoms, I cannot help forming the opinion that, had it not been for the nitrite of amyl, this poor patient would assuredly have died. I have never seen, either in surgical or obstetrical practice, any one in such imminent peril. I am thankful to say I have never witnessed a case of death from chloroform; but, from the accounts published in the medical journals, both I and my friend inferred that, in the present instance, there was syncope arising from paralysis of the heart, and that this was met by the nitrite of amyl, which, in accordance with its physiological effects, gave a direct fillip to the arrested circulation.

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Fatal Result from Habitual Use of Chloral.—The peril involved in the habitual use of hydrate of chloral has received another illustration. A gentleman, aged apparently about forty, was found dead one morning, at the Nelson Coffee-house, New-cut, Lambeth, where he had lodged for the last three months. The deceased is said to have been an army surgeon, and to have been subject to sleeplessness, to remedy which he resorted to the employment of chloral-hydrate. A verdict of "Death by misadventure" was returned at the inquest held on the body.—*Lancet*, Sept. 1, 1877.

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The Diaphanoscope.—Attempts at lighting up the abdominal cavity for the purpose of diagnosis date from 1860. Milliot in 1867 made an instrument, but only used it on animals and dead bodies. His experiments led Lazarewitch to apply it to gynæcology. He, however, failed to get light without at the same time getting heat, and so burning the patient. Dr. Justus Schramm, of Dresden, has overcome this difficulty, and made an instrument which can be used for any length of time. It consists of two glass tubes, the smaller within the larger, round at one end, at the other fixed to a wooden handle (made, for convenience of cleaning, to screw off). In the inner tube lie two copper wires, connected at one end with a galvanic battery, at the other joined by a slip of platinum. In the outer chamber cold water circulates, to absorb the heat given out by the platinum. In the handle is a button, by which the operator can make and break the current at will. The diaphanoscope is used in a dark room. The patient should be on her back, and her thighs extended. The tube is put into the vagina or rectum; the current is made, and the platinum soon gets white hot, giving a brilliant light. Then a wooden ring is pressed down, and at the same time moved about, so as to stretch and bring near to the light successive parts of the abdominal walls. The contrivance can only be used where the abdominal walls are thin, yielding, and not irritable; and there are many morbid conditions, which we need not specify, in which it is plainly inadmissible. Lazarewitch has described appearances seen with his instrument, which, if confirmed by extended observations, would give it a certain diagnostic value. Dr. Schramm, however, in the few trials he has made with his more perfect apparatus, has failed to get results anything like so satisfactory. But his observations are as yet very few; and it is hoped that further experience with it may lead to something better. Meanwhile we agree with Dr. Schramm's wise remark, that an addition to our resources is always to be greeted with thanks. Although he cannot at present tell us that it is of real use, yet by making known his apparatus he may lead others to experiment with it and improve upon it, and so time may bring practical fruits from it.—*Med. Times and Gaz.*, Aug. 18, 1877.

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The Hôtel Dieu, Paris.—The new Hôtel Dieu was officially opened on the 11th of August by Marshal MacMahon. It appears to have cost forty millions of francs and contains only 400 beds.

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Surgeon-in-Ordinary to the Queen in Scotland.—This position, which was vacated by Mr. Lister's removal to London, has been conferred upon Prof. George Macleod, of Glasgow.

—

Astley Cooper Prize.—The prize for 1877 has been awarded to the essay bearing the motto, "Facta non Verba," the sealed envelope accompanying which contained the names of Drs. Eulenburg and Gutmann. The subject selected for the next prize is, "The Cranial Nerves, with reference to their anatomy and its relations to surgical diseases and injuries. The essay to be accompanied by preparations and drawings clearly displaying the course and distribution of the nerves, and especially their mutual connections." Essays in competition, written either in the English language, or, if in a foreign language, accompanied by an English translation, must be sent to Guy's Hospital on or before January 1, 1880, addressed to the physicians and surgeons of Guy's Hospital.—*Lancet*, Aug. 18, 1877.

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VOL. XXXV. NOVEMBER, 1877. No. 419.

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CLINICS.

ORIGINAL CLINICAL LECTURES.

Clinical Lecture on Convulsions in Typhoid Fever. Delivered at the Pennsylvania Hospital, Philadelphia. By J. M. Da Costa, M.D., Prof. of Practice of Medicine at the Jefferson Medical College. (Reported by Frank Woodbury, M.D.)

Gentlemen: The rather sudden termination of one of our cases of typhoid fever, towards the close of its third week, makes it incumbent on me this morning to explain to you the mode of death, and to point out to you some uncommon features of the speedy and unexpected end. Just as convalescence appeared definitely established and the patient seemed out of danger, he was seized with general convulsions, and in a few moments expired.

After refreshing your recollection of the case by reading the clinical notes, I propose to devote the remaining portion of the hour to discussing the significance of convulsion as a symptom in typhoid fever, and its bearing upon the treatment of the disease:—

Albert McD., a seaman before the mast, was brought, Dec. 30th, 1876, from shipboard into our wards, with the statement that he had been sick for two weeks, the principal symptoms being great prostration, fever, headache, and diarrhœa. The remainder of the crew were healthy, and no cause was assigned for his illness.

Published Monthly by HENRY C. LEA, Nos. 706 & 708 Sansom Street, Philadelphia, *for One Dollar a year; also, furnished* GRATUITOUSLY *to all subscribers of the "American Journal of the Medical Sciences," who remit the Annual Subscription, Five Dollars, in advance, in which case both periodicals are sent by mail free of postage.*

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He was 21 years of age, unmarried, of good physical frame, and, to all appearance, a man of temperate habits.

His axillary temperature on the evening of admission was 104°. During the night he was delirious, but the next morning he responded intelligently to questions, and gave a connected account of his illness. He stated that he had been suffering with diarrhœa for a week before, being regarded as unfit for work, and that he had been in his berth for only ten days before admission, during which time he was pursued by strange dreams. The headache was principally frontal, and was severe and constant. The record taken on his admission into the hospital, speaks of his tongue being dry and coated from the centre to the edge, and displaying a red wedge shaped patch, its base corresponding with the tip of the tongue. The gums and teeth were covered with sordes, and the breath was offensive. There was complete loss of appetite; the bowels were moved twelve or fifteen times a day, the discharges being watery. The abdomen was tympanitic, and a few rose-coloured spots were seen on the lower part of the chest and abdomen.

The kidneys performed their function well, and the secretion was of a light amber colour, acid in its reaction, of specific gravity 1020, and contained a small amount of albumen; a microscopical examination failed to discover casts.

He was ordered dilute nitro-muriatic acid, ten minims thrice daily, and eight grains of quinia daily. To relieve the diarrhœa, he received suppositories of acetate of lead and opium. During the next few days he gained rapidly, and the temperature-chart showed the declining gradations peculiar to this stage of the disease; thus his temperature on

Dec. 30 was		104° P. M.
Dec. 31	102½° A. M.	103½° P. M.
Jan. 1	102½° A. M.	103° P. M.
Jan. 2	101½° A. M.	102° P. M.
Jan. 3	101½° A. M.	100° P. M.

Jan. 4th the temperature in the morning was 101°, and the patient had a pulse of 96, of good volume, an only slightly heightened respiration, and no cerebral symptoms; yet he died in the afternoon after a convulsion lasting a few moments. During its progress the face became purple, the head was drawn back, the neck swelled; he seemed to be gasping for breath, and struggled so violently that his limbs had to be held by the surrounding patients to prevent his being thrown from the bed.

Passing by the minor details of the case, we notice, first, that the statement of the patient, that he had been ill for nearly three weeks, was confirmed by the temperature observations. The highest point marked was 104°, on the evening of admission; following this, the evening exacerbations, after each morning's fall, showed a declining series. Nor was the improvement to be found only in the vanishing fever heat; there was no fresh eruption of rose-coloured spots, indeed, those noticed upon admission were gradually fading, the discharges were reduced and under control, the tongue was cleaning, and he slept at night without delirium, when, without warning or apparent cause, we notice that he had a violent, general, and rapidly fatal convulsion.

Now let us see if the autopsy explains this unlooked-for result, or is able to throw any light upon the cause of death. In cases of sudden termination of typhoid fever, we naturally think of intestinal perforation, of exhausting internal hemorrhage, or of cerebral effusion; in the present case this is not a subject merely of speculation, as we have the organs before us; and it is to their appearance that I invite your attention.

Autopsy.—The lungs, with the exception of some engorgement posteriorly from hypostatic congestion, are found to be healthy and crepitating throughout. There is no evidence of pleurisy; there are no adhesions or effusion. The *heart* weighs 10½ ounces; the left side is firmly contracted, the ventricle being empty, the auricle full of fluid blood. The right side seems flabby, the ventricle containing some fluid blood and a white, fibrinous clot, the auricle having fluid contents and no clot. The cavities, walls, except as regards the flabbiness of the right side, and the valves appear healthy.

The *stomach* shows some congestion of mucous membrane, and holds coagulated milk; the membrane is reddened, and is softer than normal.

The *peritoneum* contains some serous fluid, but exhibits no other sign of disease.

The *liver* is healthy in every respect.

The *spleen* is large and flabby; it weighs 19 ounces, and in section displays a currant-jelly appearance; the tissue breaks readily under pressure.

The *mesenteric glands* generally are enlarged.

In the *small intestine* there is no evidence of ulceration or perforation, but there is marked increase in size in *Peyer's patches*, and in the *solitary glands* of the large and small intestines. These look like shot under the mucous membrane: Peyer's patches are very much infiltrated, and darker in colour than the surrounding parts. There is nowhere a sign of perforation.

The *kidneys* weigh 7 ounces each. The left is large, firm, and irregular. The capsule is thickened, adherent, and on removal leaves a markedly granular surface. Upon section, a urinous odour is noticed, the organ is congested, especially in the pyramids, and the cortex appears slightly swollen. A similar condition is found in the right kidney. The pathologist has just given me a report of the microscopic examination of the kidneys in this case, in which he pronounces them to be in a state of granular degeneration.

The *supra-renal capsules* are normal.

The *brain* is rather soft, but is perfectly natural on gross examination.

Now, looking at the post-mortem results, we find in the kidneys alone sufficient ground for the explanation of the convulsive seizure; and its uræmic nature is further rendered most probable by the presence of albumen in the urine, and by the well-known fact of the favouring element of the accumulation in the blood of the products of waste and disintegration of tissue during the fever process. But before we adopt this view, let us consider what other causes may determine convulsions in typhoid fever; and thus see whether any of them is likely to have been at work in this particular case.

A patient may have a convulsion from overloading the stomach. Every hospital physician knows that the friends of the sick man have ways of eluding the most Cerberus-like of gate keepers, and are thoroughly happy if they can convey quantities of apples and peanuts to the patient to fill his stomach with when the attention of the nurse is diverted. The smuggled articles may have all the proverbial flavour of forbidden fruit, but they often lead to disastrous consequences. Among these may be convulsions, and death may occur as the direct result of paralysis of a heart already weakened by fever. We have a parallel in the way feeble children perish from convulsions brought on by indigestion. In the case we are discussing there was some suspicion of improper food having been given, but at the autopsy none was found in the stomach.

Now as to the direct influence of the typhoid fever poison itself. Could the nervous system be so excited by this as to produce a convulsion? In answering this question you will naturally think that the nervous symptoms are among the most prominent in typical cases of typhoid fever; you will recall the irregular chills at the onset of the disease, the pains in the loins and limbs, the ringing noises in the ears, the giddiness, the severe headache, and the profound prostration; you will reflect on the restlessness, subsultus, vigilance, and delirium which belong to the course of the complaint almost as surely as do the diarrhœa and fever; you will think of all these evidences of great derangement of the nervous system, and be prone to conclude that convulsions are likely to be among them. But they are not. Convulsions in typhoid fever are rare, so rare as to be regarded almost as a clinical curiosity, and to be set down as something outside of the regular history of the disease. In nearly three thousand cases of enteric fever admitted into the Fever Hospital in eight years convulsions occurred in only six, Murchison tells us in his classical treatise. In typhus they happen much more frequently.

When I make these statements I allude

to general convulsions. Spasmodic movements, such as jerking of the tendons, hiccough, twitchings of the muscles of the face, are, we know, not uncommon in typhoid fever; and choreic movements, rigid contraction of the muscles of the extremities and even cataleptic states, though far from common, have been often described. But convulsions from any cause in typhoid fever are extremely infrequent; and the most unusual kind is from the direct influence of the poison on the nerve centres. At least this is true of adults: a different statement must be made of children. But whether in children or in adults, convulsions due to the fever poison alone, happen at the onset, or in the first week of the malady.

Gentlemen, you know well that the vagaries of hysteria baffle any description. Among these vagaries is the occurrence of hysterical seizures in the early part of typhoid fever. I saw such a case a few years since with an eminent physician in this city. The hysterical outbreaks and convulsions in the first week of the fever were extraordinary and misleading; violent neuralgic pains in the head also existed, and the case looked like anything else rather than like one of typhoid fever. Nothing but the decided fever temperature and a certain irritability of the bowels excited even suspicion. On the eighth day appeared the characteristic eruption. I am sorry to add that the case became a very grave one, and died in the second week.

Epilepsy is among the causes of convulsions during an attack of typhoid fever. The wonder is that it does not show itself oftener. The reason I suppose to be in the strange law by which the affection is temporarily obliterated when an epileptic is stricken with an acute disease. We see whooping-cough suspending it, fevers lulling it. But the malady is not dead, it is slumbering; and it may start up vigorously during the last stages of the fever or during convalescence. I attended a case some time ago, in which three epileptic seizures happened in the course of twenty-four hours in the third week of the enteric fever. There had been no kidney complication, and no cause other than epilepsy could be discovered for the attack. The patient was very drowsy after it, yet the recovery was not much retarded by the accident. A positive diagnosis in such cases can only be made by the aid of inquiry concerning the previous history. But the time of the occurrence of the convulsions should always arouse our suspicions.

Typhoid fever may become complicated in its course with apoplexy, and the effused blood lead to such damages as to give rise to long-continued palsy. A case of this kind, with right-sided hemiplegia of two years' standing, came under my notice recently at the clinic of the Jefferson Medical College, in the person of a sturdy young farmer. Where the clot is effused on the surface of the brain, convulsions may readily be associated with the apoplectic seizure.

There are a few other causes of convulsions in typhoid fever that I will mention to you, though they but very rarely happen. If in a child, pneumonia of the apex of either lung should complicate the fever, convulsions may be met with. Clogging of the vessels, either those supplying the brain or elsewhere, may be attended with convulsions.

Syncope, combined with anæmia of the brain from the defective circulation, may happen during convalescence, but cannot readily be confounded with convulsions. Nor need it excite alarm, unless during the interruption to the circulation a clot should form in the heart and pulmonary artery, in which case there will be gasping and struggling for breath, the face becoming cyanotic; in this condition death may ensue in the course of a few moments. Convulsions, then, should not be anticipated from pure anæmia of the brain, except indirectly, by disturbing the heart's action so as to lead to the formation of thrombi. But as the result of thrombosis, and especially of a clot extending into the pulmonary artery, they certainly happen. Murchison records an instance of convulsion, with thrombosis of the left femoral vein.

Might convulsions be due to remedial agents given in the treatment of the disease, such as large doses of quinia? This is, I think, possible; for, as you are fully aware, cinchonism is announced by its influence on the nervous system, especially on the cerebral nerves, and one of the toxic effects of the drug, proved by physiological experiment, is general convulsions. I merely refer to this as among the possible exciting causes, although I have never met with an instance of the kind. Yet it is well to bear the possibility in mind. It has become, lately, a prevailing treatment, imported from Germany, to give enormous doses of quinia to reduce the temperature—as if typhoid fever consisted merely in heightened heat of body! Let us hope that no accidents will attend this therapeutic doctrine.

The causes that I have alluded to may all lead to convulsions in typhoid fever. But it is, after all, in connection with the disordered condition of the urinary function that we mostly find this symptom. I told you, at the beginning of the lecture, that I believed uræmia to have determined, in the case we have been investigating, the fatal convulsion. Irrespective of the diseased appearance of the kidneys which I have submitted to your inspection, you may judge, from the description I have given you of other exciting causes and how they act, that they do not here apply. Let us now study a little more closely how the uræmia with its dire results is brought about.

The noxious urinary ingredients may be absorbed into the blood in consequence of the distension of the bladder. It is well known what a paralyzing effect low fever exerts on the muscular coat of the bladder. The viscus may become greatly distended, as we can recognize by percussion, although the patient seems to be voiding natural amounts of urine. The result of the accumulation may be the poisoning of the system with urea or the products of its decomposition. I shall not readily forget the impression made on my mind by a case of this kind seen a number of years ago. The young man lay for several days in a state of semicoma, associated with marked twitchings of the muscles of the face. He was more than once on the verge of a general convulsion; passing a catheter several times a day after the difficulty was recognized, removed the untoward symptoms.

But the most common cause of the uræmic poisoning, and of the convulsions that may attend it, is to be found in disorder of the kidneys. If, indeed, you will collect the recorded cases—they are, it is true, not many—you will find a condition of diseased kidney or antecedent albuminuria in the majority of them, although the connection between this and the convulsion may have passed unnoticed. But is albuminuria always antecedent? Not to needlessly obscure the subject in your minds, but to warn you of a source of fallacy, I must state that, in some cases of fever, there may be an excess of urea and the products of tissue-waste in the blood, progressing even to the production of uræmic convulsions, without the presence of albumen in the urine. The secretion in this case is scanty. The urea is found in deficient quantity in the urine; while in the blood we find alterations produced by its presence, or of the substances it gives rise to. We may have to seek the advice of the professional chemist to determine this point; and I have more than once been most efficiently aided in solving the obscure clinical problem by the skill of our pathological chemist, Dr. Hare. Again, convulsions, at any time and from any cause, may themselves produce transient albuminuria, so that the detection of albumen in the urine for a day or two after the attack is not sufficient to establish its uræmic character.

In cases where albuminuria and undoubted disease of the kidney exist, and convulsions have happened, does the renal difficulty antedate the fever, or, is it a complication? It may be either. Chronic nephritis grants no immunity from typhoid fever; on the other hand, an engorgement of the kidney, an accumulation of epithelium in the tubules, and the beginning of a parenchymatous nephritis are met with, as part of the typhoid fever process, and may be sufficient to clog the kidney to such an extent as to interfere with its function. You will ask me how are we to know if the kidney disorder belongs to the fever or not? We cannot always know.

It is true that considerable quantities of albumen, the presence of markedly granular or fatty casts would determine the antecedent nature of the malady. But some tube casts may also be found in the urine coming from the hyperæmic fever kidneys; and we may not detect them at one examination in the urine of a chronic renal affection. The presence of albumen from the onset of the fever would greatly favour the supposition of the latter; for in typhoid fever albuminuria is not an early symptom. Again, we may have the lesions determined by the fever process adding to the embarrassment of an already diseased organ; and thus producing the inaction which has led to the uræmic seizure. Such I take it happened in the case which we have been discussing this morning.

Now, I have conveyed to you a wrong impression if I have led you to suppose that convulsions must always happen in consequence of the uræmia met with in fevers. Coma is, perhaps, the more common result; or a state of half-coma with convulsive twitchings. We have recently had a case of uræmic coma in the hospital which some of you have seen, and you will pardon the slight digression from my subject if I tell you here of its progress, and call your attention to the pathological specimens:—

Alex. N. V., a sailor, 21 years of age, born in Finland, was brought into the ward a few days since, having been seriously ill for two days. Diarrhœa had previously existed, but had been checked by medicine received from the captain of the vessel. As the patient could not speak English, only an imperfect account was obtained of his illness, but from the statements of his shipmates it was thought that he had been sick altogether for nearly three weeks, although not confined to bed until a few days preceding admission. His chief symptoms had been prostration, profuse diarrhœa, headache, fever, and nocturnal delirium. Upon entering the hospital in the morning his temperature in the axilla was 103° which declined to 101½ in the evening; his face was dusky, though the cheeks were flushed, and the eyes bright; but his mind was dull, and he responded to questions reluctantly. The tongue was coated and fissured, having a decidedly typhoid appearance, the gums were covered with sordes. The abdomen and chest were examined for rose-coloured spots, but none were detected; considerable tympanitic distension was noticed with gurgling on pressure over the ileo-cæcal valves. The urine was decidedly albuminous, although not to a highly-marked degree; it is to be regretted that there is no exact note of its microscopical appearances. On the night succeeding admission he was delirious and noisy, and the bowels were very loose, the discharges having the usual typhoid appearance.

The treatment instituted was by frequent small doses of mineral acids, eight grains of quinia daily, with milk punch and beef tea. Opium suppositories were given occasionally to reduce the discharges, and the body was sponged with tepid water three times a day. As a result of this the temperature, which had indicated 103½° on the second morning, did not rise above 103° in the evening, and the patient appeared better. On the next, or third morning, the temperature had fallen to 101½°, yet an unfavourable change was noticed. During the night he had been delirious as usual, but when seen, early in the day, he was found in a condition of profound hebetude. His face was flushed, the eyes were injected and motionless, his breathing was laboured and stertorous, and only with the greatest difficulty could he be aroused from this almost senseless condition to give any sign of recognition or to take nourishment, and, when aroused, he immediately relapsed into this semi-comatose state. He had passed but little urine, yet the bladder was not distended. The breathing was rapid and embarrassed.

His feeble condition forbade extended physical examination. It was determined, however, that slight dulness existed at the base of the right lung, and that on the left side exaggerated and harsh respiration existed. The first sound of the heart was feeble, the second was distinct; the pulse had risen from 100 to 120, and was very compressible. In view of his sinking condition, the quinia was increased to twelve grains, and tincture of digitalis was ordered to be given in ten minim doses every four hours. The acid was discontinued. Stimulants were freely administered, and his chest was thoroughly dry-cupped, but the stupor deepened, the difficulty of breathing increased, and he died in the afternoon in an unconscious condition, with every evidence of profound coma.

Not to dwell minutely upon the details of the post-mortem examination, it may be stated that nothing notable was found in the *lungs* except spots of congestion, especially on the right side, and no effusion was discovered in any of the serous cavities. In the *heart*, which in size and general appearance was normal, a white, fibrinous clot existed in the right auricle and ventricle, extending into the pulmonary artery. The left ventricle was empty, the auricle contained a recent dark coagulum. The *spleen* was congested, large, and heavy, weighing 13½ ounces. The *liver* was also large, but appeared to be normal.

The glands of the small *intestine* and the patches of Peyer were swollen and contained hemorrhagic points of minute extravasation. The solitary glands in the colon were not enlarged. The mesenteric lymphatics were prominent and engorged, but not softened. On section they displayed a pinkish surface.

The *kidneys* were found to be in a decided state of disease, although not in an advanced stage. The left was the larger, its capsule was firmly adherent; the cortex was opaque, whitish, and the stellate veins were distinct. The cut section had a urinous odour, the parenchyma was congested, the pyramids being more red than the cortex, which was swollen and appeared relatively increased in size. This organ weighed seven ounces. The right kidney presented the same general characters, but weighed one ounce less. The weight of the normal kidney in this patient, taken in proportion to the size of the other organs, should be about five ounces, or not more than five and one-half. The whole appearance of the organ affords an illustration of the large kidney of acute tubal nephritis, or parenchymatous inflammation.

This case tells its own story. I will do no more than call your attention to the marked evidence of disease of the kidneys, which seems to me to have been acute and an outcome of the fever process, and to the heart, or rather to the clots in it. Some doubt must exist as to the time of their formation. The one extending from the right ventricle had the look of being an ante-mortem coagulation; and it seems to me quite possible that some of the phenomena of the case, the pulmonary signs in particular, were due to a forming thrombosis in the pulmonary artery.

But I must revert to the subject I have been attempting to elucidate, convulsion in typhoid fever. We have found that it may be due to a variety of causes, though uræmia is the most prominent. The *prognosis* will of course depend very much on its exciting cause. It is generally unfavourable. The most favourable prognosis is, if the seizure be in an epileptic and an outbreak of epilepsy, or if the subject of the convulsion be a child overcome at the outset with the fever poison, or be affected with an apex pneumonia; of the uræmic convulsion, that associated with retained urine in a distended bladder justifies the most hope.

The *treatment*, too, will largely depend on our knowledge of the cause. I will merely point out how important it is to take care that the broken-down waste is not retained in the body, and that the kidneys are kept freely acting; and how readily careful attention to the state of the bladder may prevent a serious mishap. During or soon after the fit we must see to it that the head is kept cool, and the flow of blood in the body equalized. Cupping at the back of the neck, and even general bloodletting, suggest themselves among the remedies to diminish the vascular tension. These remedies are potent also for evil; and it must in an individual case always remain a matter for judgment, whether the patient is in greater danger from a local injury to brain or lung and the general turgescence of the vessels, or from the extreme debility that attends the fever. In deciding this the pulse and the state of the first sound of the heart are our chief guides. But I cannot now further enter into this subject; it involves much, having a wider range than can be accorded to my discourse. Let me only add that, if the convulsion be due to apoplexy, and associated with one-sided palsy, the abstraction of blood seems to me imperatively indicated. If the convulsions are epileptiform in a subject predisposed to epilepsy, bromide of potassium will be our main reliance. But, whatever treatment be employed, let it be active, and take into account the pathological condition which has occasioned the outburst.

HOSPITAL NOTES AND GLEANINGS.

Two Cases in Illustration of the Efficacy of Chrysophanic Acid in the Treatment of Psoriasis, after failure of various other Remedies. — The following cases were treated by Dr. Whipham at St. George's Hospital.

Case 1.—E. F. S., aged seven, was admitted into St. George's Hospital, under my care, on March 21, suffering from a copious eruption of psoriasis. His mother was a person of strumous habit. Of six brothers and sisters, one died in infancy; one, at ten months old, had an abscess on the cheek; the others are very healthy. The boy himself was brought up by hand. Had measles when three years old; no other disease. He was always pale and delicate, with a bad appetite, and subject to vomiting after food; occasionally he suffered from headache. Has always lived well. He had never suffered from cough or glandular swellings; there is no history or appearance of hereditary syphilis. Has always been "nervous," and is less intelligent than his brothers and sisters. The present eruption of psoriasis began with one spot on the back in September, 1876; a month later it appeared on the legs. His general health has not been in any way affected.

On admission there were numerous patches or psoriasis, with thick masses of scales, and varying in size from that of a threepenny-piece to that of half-a-crown, upon the legs, arms, and trunk; one small one on the left upper eyelid. The patient is well nourished, but of markedly strumous appearance. General health good; no cough; tongue red, with prominent papillæ; bowels open. Ordered—Ol. morrhuæ ʒjss, syr. ferri iodid. ʒss, bis die. Picis Burgund., sapon. moll., sp. methyll., part æqual; to be rubbed into the affected skin. Pulv. rhei c. sod. gr. v om. nocte.

March 27. The scaliness has disappeared, and the subjacent thickening of the skin has diminished; while at the same time the redness of the patches has markedly subsided. The bowels have been confined for the last day or two, but are well open to-day; tongue as before.

29*th.* The pitch ointment to be applied to the left leg, and to the right the ointment of nitrate of mercury.

31*st.* The condition of the right leg is much improved, whereas the patches on the left are very little altered. Ordered—Liq. potassæ ♏vj, haust. cinchonæ ℥j, ter die. Pulv. rhei c. sod. ℈ss omni altern. nocte. The nitrate of mercury ointment to be used solely.

April 10. Both legs are improved as regards scaliness, but there is no appearance of healthy skin in the centres of the larger of the affected parts, although the smaller spots are gradually fading.

12*th.* A drachm of cod-liver oil to be given with each dose of the medicine, and a soda bath every night.

Little or no improvement was observed up to April 28, when the following ointment was ordered to be applied to the eruption: Acid. chrysophanici ʒss, adip. ℥j.

On the eighth day after this application the eruption had almost disappeared; one or two minute spots only remained on the legs where the ointment had been too sparingly applied; these disappeared in the course of a few days. The patient suffered from incontinence of urine, and as the prepuce was very long, it was removed, and he remained in hospital under the supervision of the surgeon for a few weeks. The chrysophanic acid ointment was discontinued on May 11, and he was kept under observation until June 29, up to which time no recurrence of the disease had taken place. A few hours subsequently to the application of the ointment the unaffected skin became of a purple-red colour, which disappeared on pressure, while the sites of the patches of psoriasis, after the thickening had subsided, remained perfectly white. This dusky red colour speedily faded after the ointment was discontinued, and the skin generally, including that of the diseased parts, assumed a natural appearance.

Case 2.—In the spring of the year 1874, Selina W., aged fifteen, a domestic servant, living in the country, came under my care as an out-patient in the department for diseases of the skin at St. George's Hospital. She had then a copious eruption of psoriasis over the trunk, arms, and legs. The eruption had commenced two years previously, and, with partial remissions at different times, had been steadily on the increase, this increase being more especially marked in the spring.

She was a remarkably well-grown girl, and looked six or seven years older than her stated age; she was, moreover, in robust health, her only complaint being profuse and occasionally deferred catamenial periods. She, however, never exceeded six weeks.

Her family history was good, her parents lived in the country, and there was no account of syphilis either hereditary or acquired. The appearance of the eruption and the catamenia were contemporaneous, but, beyond the slight irregularity of the latter above mentioned, the girl was in perfect health.

The treatment consisted in careful attention to her diet; beer, which she had been in the habit of drinking in moderate quantity, was discontinued, and her food was to be of the plainest description. She was ordered—Liq. arsenical. ♏iij, dec. cinchon. ℥jss, ter die. At first the treatment seemed to be productive of good results, more especially as regards the trunk, but eventually lost its effect as the autumn came on. No alteration was, however, made in the treatment until February 11 in the following year, when nitrate of mercury ointment was ordered to be rubbed into the affected parts.

On May 6, 1875, as the eruption was rapidly increasing, the treatment was altered with a view of increasing the action of the kidneys, and the following prescription was ordered: Sp. æther. nitros. ʒj, tinct. scillæ ♏x, potass. acetat. ℈ss, h. acet. ammon. ℥jss, t.d.s. Rep. unguent. hydrarg. nitrat.

This change produced speedy results, and on July 27 the note runs: "Only one or two patches on the arms, but there is an increasing tendency to the formation of fresh spots, which, however, soon fade." It appeared that the disease was again on the increase.

On August 26 she was much better.

On October 21 the eruption had not improved, and it was deemed advisable to try a mixture containing tincture of rhubarb and bicarbonate of soda in infusion of cloves.

She continued stomachics, etc., with little or no benefit until January 20, 1876, when her treatment was again altered as follows: Liq. hydrarg. et arseni. hydriodat. (Donovan's) ♏viij, inf. gent. co. ℥j, ter die; and upon this she again improved for a time, but in about six weeks the improvement ceased, and the eruption again began to spread. The medicine was continued for some months, until finally the gums showed decided evidence of mercurial poisoning, and all medicine was discontinued for a time. Before this the patient had ceased to attend the hospital, owing to a regulation of the Board limiting the period of attendance for out-patients.

At the beginning of March, 1877, I saw her again, and found that the psoriasis had recurred in all the original situations, and that she was as bad as when she first came under observation. I then ordered her to take three times a day a pill containing one-twentieth of a grain of phosphorus.

On April 1, I found that the psoriasis was rapidly disappearing. The improvement, however, was of very short duration; and on May 31, 1877, the eruption was rapidly extending on the limbs and trunk. I prescribed for her an ointment: Acid. chrysophanici gr. l, adipis præp. ℥j, to be rubbed well into the patches night and morning. At the end of a week I heard that the unaffected skin was "of the colour of a red Indian," and that she had a running at the eyes and slight dimness of sight. I therefore directed the ointment to be applied every other night.

On June 21, exactly three weeks after the commencement of chrysophanic acid ointment, I saw my patient, and found that, with the exception of one or two scaly unthickened spots (each rather less than the size of a pea, on each wrist), she was quite free from all trace of the skin disease. Her skin at the time of this visit was of a dull purple colour, such as one sees when the face of a person with a florid complexion is sunburnt. Her health was excellent, and the catamenia were quite natural, both in time and amount. She was directed to apply the ointment to the spots on the wrists once a day.

On July 22 I again saw her, and found all traces of the eruption gone, and her skin natural. She had discontinued the ointment some weeks.

Remarks.—Of the two cases, the second is a most striking example of the remarkable effects of chrysophanic acid in the cure of psoriasis. I have briefly alluded to it in the *St. George's Hospital Reports*, vol. viii. page 227, and the statement therein, that the disease had baffled all my attempts at cure, must now be considerably modified. The "Notes from the Skin Clinique" were written many months before the publication of the volume, and at that time no remedy had pro duced any permanently good effects in my patients. In a footnote on page 227 of the *Reports*, mention is made of the fact that the psoriasis was disappearing under the use of phosphorus, which was commenced in March, 1877. By the end of May, however, the disease was nearly as bad as ever, and it was evident that the drug was of no use in relieving her ailment. After so many and repeated failures (the majority of which have been mentioned in the necessarily curtailed notes of a case which had been under treatment for more than three years), it was not without a feeling of despair that I had recourse to chrysophanic acid; the result, however, and the rapidity with which that result was brought about, surprised me extremely—a surprise which is not lessened by the recollection that the girl had suffered from the skin disease for five years and a quarter at the time when the acid was first employed, and that she was entirely free from psoriasis in twenty-one days. Possibly the psoriasis might have yielded to local applications of pitch, etc., but, as I have mentioned in the *Hospital Reports*, I had no opportunity of trying it, owing to the inveterate dislike of her mistress to the smell of such preparations. The case of the boy also illustrates the beneficial effect of the drug, though to a less degree. I have here placed the two cases together, because they *appear* to me to show that chrysophanic acid has some distinct action in certain forms of skin disease independently of the patient's diathesis. The subjects of the above notes differed in almost every respect. The boy was pallid, of small stature, and very delicate in appearance; he was, in fact, as stated by Dr. Owen (Medical Registrar at St. George's, to whom I am indebted for the notes of the case), essentially a strumous child. Selina W., on the other hand, was a remarkably well-proportioned country girl with a florid complexion, who, with the exception of a trifling catamenial irregularity when she first came under notice, was in most robust health. In the case of the boy the eruption had disappeared eight days after the employment of the chrysophanic acid, and so far this case contrasts favourably with that of the girl S. W. It must, however, be borne in mind that the scaliness of his disease had been greatly modified, if not entirely removed, by previous applications, while to hers no local treatment had been employed for a long time. In the case of S. W., certain irritating effects resulted from the use of the drug. Redness of the skin is a usual sequela of its local application, but this redness in the majority of cases seems to be limited to the neighbourhood of the affected parts to which the acid has been applied. In the present instance the effects were more extensive; the face generally became swollen (it must be noted that the eruption did not involve the head or neck, and consequently the ointment was not used above the shoulders). Dimness of sight was also mentioned by the patient as one of the effects of the remedy, but on questioning her I was inclined to attribute this symptom rather to the "running at the eyes" than to any interference with the function of the eye itself, more especially as she recovered her natural powers of sight within a few hours of discontinuing the use of the acid. Failures will, doubtless, occur with this, as with all other remedies, which at first appear to be productive of such extraordinary results. At present our knowledge of the action of the drug is limited, and recorded cases are few in number. It is with a view of adding to these records that the above cases are published.—*Med. Times and Gaz.*, Sept. 22, 1877.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

Original Clinical Lectures.—With this number we begin the publication of a series of clinical lectures specially reported for the MEDICAL NEWS. We are induced to make this change in the belief that original American clinical lectures will be more attractive to our readers by furnishing a narrative of diseases as they appear among us, with the modifications which may be produced by surrounding conditions, and of their treatment as defined by our leading medical teachers.

The extremely interesting lecture which we present in this number was delivered by Dr. DA COSTA, and, very appropriately to begin our series, in that venerable institution, the Pennsylvania Hospital, where clinical lectures were first given on this continent. Succeeding numbers will contain lectures by Drs. WEIR MITCHELL, GROSS, FLINT, SAYRE, PEPPER, BARTHOLOW, HUTCHINSON, and other prominent clinical teachers in various sections of the country. With such names, and with the vast amount of interesting clinical material at command in all our cities, it is needless to state that our standard of merit will be as high as when our lectures were selected from the best of those published in foreign journals.

Deductions from some Mortuary Statistics.—Dr. E. FLETCHER INGALS, in the *Chicago Medical Journal* for October, 1877, presents a study of the mortuary statistics of the principal cities of the Union, and deduces the following conclusions, which, although he does not claim to be established facts, he thinks bear the stamp of strong possibilities.

1st. Residence by the sea-shore is prejudicial to phthisical patients.

2d. There is something peculiar to the climate of San Francisco, or to the business and social relations of its inhabitants, which strongly predisposes to aneurisms.

3d. A large percentage of the mortality in Chicago is the direct result of organic poisons emanating from the slaughter-houses, glue factories, and rendering establishments of Bridgeport, and the foul water in the North Branch.

University of Pennsylvania.—It augurs well for the future of medical education that the profession has unmistakably shown its sympathy with those schools which have honestly endeavoured to raise the standard. The last effort, that of the University of Pennsylvania, an outline of which we traced in our June number, has met with a cordial response. Contrary to the expectations of the University authorities, the class has not undergone any temporary reduction, and about 140 new students have matriculated for the three years' course.

We are glad to learn, that, since the changes in the curriculum have been made, the Chair of Surgery has been endowed with fifty thousand dollars; and that the guarantee fund, of about seventy thousand dollars, which was raised to protect the school against the supposed loss of income consequent upon the expected reduction in size of the class, being not needed for this purpose, will be passed over to the general endowment fund of the Medical Department.

Catalogue of the Alumni of the Medical Department of the University of Pennsylvania.—The Society of the Alumni of the Medical Department have just issued a handsome catalogue of the medical graduates of the University. It is an octavo pamphlet of 206 pages, and contains the names of about nine thousand graduates. We trust that the work will meet with such a ready sale as to warrant the Society in issuing a revised edition every ten years.

In the preface we find it stated that no general catalogue of medical graduates has been published since 1835. This we suppose is a misprint, as it is certainly an error. The last general catalogue, we believe, was published in 1845, and in the third edition of this there are included lists of the graduates of 1845 and of 1846.

Warren Triennial Prize.—We are pleased to learn that this prize, which amounts to nearly four hundred dollars, has been awarded to Dr. E. O. Shakespeare, of Philadelphia, for his essay "On the healing of Arteries after Ligation." The number of competitors is stated to have been exceedingly large, and several of the essays reflected great credit upon the industry and ability of the writers.

American Journal of Obstetrics.—The October number completes the tenth volume of our valuable contemporary, and we are glad to learn that the increase of its circulation has induced its publishers to add 48 pages to each number without increase of price.

Lectures on Artistic Anatomy.—Dr. W. W. Keen will deliver a course of lectures on Artistic Anatomy at the Pennsylvania Academy of the Fine Arts, corner Broad and Cherry Streets, Phila., beginning on Saturday evening, Nov. 3, 1877. The course will consist of about thirty lectures, and will be illustrated by diagrams, casts, anatomical models and preparations, and the living model. The proceeds are for the endowment of the library.

Remedy for Burns and Scalds.—Dr. G. F. Waters, of Boston, recommends the use of bicarbonate of soda as a local application to burns and scalds. The soda must be sprinkled over the injured part, and a wet cloth applied over it. Under this treatment the pain is almost immediately relieved, and the healing process goes on very rapidly.—*Med. Record*, Oct. 20, 1877.

FOREIGN INTELLIGENCE.

An Epidemic of Typhoid Fever spread by the Milkman.—A short time ago Dr. Littlejohn, Medical Officer of Health for Edinburgh, received information of a serious outbreak of typhoid fever at Coltbridge and other districts in the west end of the city, which it was believed had been caused by means of milk sold at a dairy in which a person was suffering from the fever. The district in which the outbreak first occurred is beyond the municipal boundaries, but Dr. Littlejohn lost no time in moving in the matter, the patient being removed to the infirmary. At the same time he communicated with the sanitary inspector for the district, with a view to steps being taken to have the surroundings of the dairy in question improved. The retailers of milk in Edinburgh who received their supplies from this dairy have been advised to discontinue their orders for the present, and this recommendation has been acted on. At present over twenty families in the district are suffering from the fever, several of the cases having terminated fatally. Dr. Littlejohn is carefully watching the progress of the epidemic, and taking all the necessary precautions to prevent its spread.—*Med. Times and Gaz.*, Sept. 15, 1877.

Chloral in Tetanus.—At a late meeting of the Paris Surgical Society, M. Gueniot read a report on a case communicated by M. Ganiez. The cause of the tetanic attack in this case was rare, as the disease became developed twenty-two days after an amputation of the breast. Large doses of chloral, twenty-five grammes (seven-eighths of an ounce), were given every twenty-four hours. On the fourth day the effect was so manifest that a speedy cure was anticipated; but the patient was not perfectly well before five weeks. About three and a half ounces of chloral were given altogether.—*Med. Examiner*, Sept. 13, 1877.

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Salicylic Acid in Pertussis.—Amidst the round of trials which salicylic acid is undergoing, may be mentioned its use in pertussis as recommended in the *Petersburg Med. Woch.*, Nos. 22 and 23. Inhalation of a 2 per cent. solution for five minutes every evening during the convulsive stage effects an immediate influence, a cure resulting, on the average, within two weeks.—*Med. Times and Gaz.*, Sept. 15, 1877.

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The Prophylaxis of Phthisis.—At the last meeting of the Paris Academy of Medicine, M. Lagneau read a paper, which was referred to the Committee on Hygiene, in which he advocated strongly the enforcement of measures of public hygiene, with a view to diminish the frequency of phthisis. This terrible scourge of the inhabitants of the temperate zone is, he showed, more prevalent in Paris than in Berlin and London, reaching a mortality of 18 per cent., a proportion in which it is exceeded by Brussels and Vienna. He pointed out that whereas formerly the male deaths from phthisis were less than the female, the proportion between the sexes has now become reversed, the male mortality being to the female as 115 to 100. Further, that the mortality was higher by one-fourth among the immigrant population (country folks and foreigners) than among the native Parisians. After alluding to the fact that the disease prevails in warm and cold climates, M. Lagneau pointed out that certain regions enjoyed an immunity, such as certain altitudes in the Alps, Pyrenees, Cordilleras, Andes, the Mexican plateau, and certain northern countries, as Iceland, the Hebrides, portions of the northwest of Scotland, and the Faroe Islands. Although the only point in common between these mountain districts and northern countries is the possession of a low temperature, he showed, however, that cold could not be considered as preventive of phthisis, for M. Homann has shown it to prevail at Christiansand, in 62° north latitude, with a mean annual temperature of 4.5° C. (40° F.), and MM. Etzel, Billebon, and Guerault report a certain proportion of deaths from pulmonary consumption in Greenland. In France itself a far larger number claim exemption from military service on account of chest disease in the northern departments, as those of the Nord and Pas du Calais, than in the rest of France; but there is likewise a fair proportion even in the Mediterranean departments, where sufferers are so often sent. M. Lagneau showed also that poverty and insufficient nourishment do not go hand in hand with phthisis, the inhabitants of those districts where the disease prevails being in much better circumstances than many others where phthisis is almost unknown. Pursuing his analysis further, he finds a general consensus of opinion among French authorities as to the favouring effect of sedentary occupations and trades; the department of Morbihan, which furnishes the fewest instances of the disease, being also the least industrial part of the country. He urged therefore the formation of free gymnasia, the encouragement of athletic exercises, formation of choral societies, establishment of public sanataria for the phthisical, prevention of overcrowding in workshops, and means taken to procure a good supply of air and light in newly built dwellings, legal restrictions against juvenile labour, the encouragement of physical exercises in the lycées and schools, and the substitution of rural camps in place of barracks, where the young soldier could pass his term of military service.—*Lancet*, Oct. 6, 1877.

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Sanitary Science and its Practical Results.—A portion of the address delivered at Aberdeen by Dr. Edwin Chadwick, President of the Public Health Section of the

Social Science Association, consisted of an exposition of the results produced by the application of the principles of sanitary science in the prolongation of human life and the prevention of disease. He very happily put the subject in the form of a hypothetical contrast; pointing out that, on the one hand, by closely copying certain notorious localities, both in Great Britain and on the Continent and America, with all their unsanitary conditions, a city might be built which should present an annual mortality of more than 40 per 1000; in which more than half of those born should die before the fifth year; and in which there should be a general moral and physical deterioration of the survivors. That these results could be produced, was proved by their existence under the conditions referred to. On the other hand, the application of sanitary knowledge had produced, and might produce, results which were thus summarized by Mr. Chadwick. 1. We have gained the power of reducing the sickness and death-rates in most old cities by at least one-third; or, as a rule, of reducing the death-rates in old British urban districts to 16 or 17 in 1000. 2. In new districts, on sites apart from old urban sites, we may, with a complete arterial system of water-supply and surface-cleansing—including measures for the prevention of overcrowding—insure reduction of death-rates to less than one-half, or to a mean rate of 10 in 1000, and the sickness in the like proportion. 3. In well-provided and well-regulated institutions for children from three to fifteen years of age, we may secure them an immunity from the common children's epidemics, and reduce the death-rates to a mean of about 3 in 1000. 4. In prisons and places under effective sanitary control, the death-rates (from disease) have been reduced amongst persons from the school ages and upwards to about 3 in 1000, or to one-third of the death-rates prevalent amongst the general population of the same ages. 5. To the persons in such institutions an immunity may be given against all ordinary epidemics, typhus and the eruptive diseases, diarrhœa, and dysentery, which ravage the general population. 6. Amongst the general population a reduction by fully one-half of the diseases of the respiratory organs may be effected by general public sanitation. 7. Complete habits of skin-cleanliness, alone and apart from general structural arrangements, or alterations of habits in other respects, constitute a factor of about one-third of the power of sanitation. 8. By a proper selection and a due sanitation of sites in tropical climates, and the sanitary care of the population, the birth-rates may be made to exceed the death-rates, and a healthy succession secured for colonization, for people of the British or of the white races. 9. By the increased health and strength imparted by improved physical training under sanitary conditions, on the half-school-time principle, in the infantile and juvenile stages, the efficiency of three for productive occupation may be imparted to every two of the most depressed classes of the population. 10. The death-rates from disease in the mercantile marine may, by the exercise of the like powers of sanitation that are exercised in the Royal Navy, be reduced by two-thirds, or to the general death-rate now prevalent in the Royal Navy, namely, about 6 in 1000. 11. As indicated by existing normals, the greatly reduced death-rates in the army at home and abroad admit of important further reductions, by a more complete application of tried and approved means of sanitation.—*British Med: Journal*, Sept. 29, 1877.

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Death from Bichloride of Methylene.—Another case of this has occurred at the Radcliffe Infirmary, Oxford. A young man was operated on for disease of the bones of the foot, and amputation was performed above the ankle-joint. Bichloride of methylene was administered on lint. Before the dressing of the stump was completed, it was observed that the patient was pulseless, and that respiration had ceased. Artificial respiration was attempted, but, unhappily, without success. A case of death during anæsthesia occurred at this Infirmary about five years ago.—*Med. Times and Gaz*, Sept. 22, 1877.

Composition of Quack Medicines.—This is not a secret with regard to most of these, thousands of analyses by competent chemists having supplied revelations that would fill volumes. This is, however, of no avail, for neither the chemists nor governments are disposed to incur the expenses which would be required to make known the deceptions of these widely advertised compounds. Richter states that among 938 secret remedies analyzed by him, he found (1) 22 per cent. contained substances of violent or poisonous action; and (2) 25 per cent. which, although less active, yet were possessed of medicinal power; while (3) 52 per cent. were of no importance, or quite inoffensive. The first category especially comprises violent and poisonous agents for the skin and hair; opiates for children, capable of inducing chronic cerebral disease or even death; "purifiers of the blood," composed of arsenic or mercury; and a whole legion of violent purgatives capable of doing in inappropriate cases an immense amount of mischief. The third category comprises preparations which have nothing in common with the noxious and poisonous effects produced by those of the first and second, but yet agree with them in being sold at from five to a hundred times their proper value, and thus constituting robberies. All these attacks on the public health and morals take place with the full cognizance of the public authorities.—*Med Times and Gaz.*, Sept. 15, 1877, from *Lyon Méd.*, Sept. 2.

The International Medical Congress, Geneva, 1877.—The International Medical Congress was opened at Geneva, on September 9th, by an address of welcome from Professor Charles Vogt, President of the Committee of Organization, in the hall of the University. Almost all the nationalities of Europe as well as the United States of America and Mexico were represented by delegates.

The organization of the Congress was completed by the election of the following officers:—

President, Prof. Charles Vogt, of Geneva; *Honorary Presidents*, Professors Bouillaud, Verneuil, Ollier (of Lyons), Letievant (of Lyons), and Lebert.

Vice-President, Dr. H. Cl. Lombard, of Geneva.

Honorary Vice-President, M. Marey.

Secretary-General, Dr. Prévost, of Geneva.

The Congress was subdivided into six Sections as follows: Medicine, President, M. Strœhlin; Surgery, President, Dr. Mayor; Midwifery and Gynæcology, President, Dr. Gautier; Public Medicine, President, Dr. H. Cl. Lombard; Biology, President, Dr. M. Schiff; Ophthalmology and Otology, President, Dr. Warlomont, of Brussels.

A number of interesting papers, which elicited instructive discussions, were read and abstracts of the more important of them will appear elsewhere.

It was determined that the next Congress shall be held in Holland.

Canada Medical Association.—The annual meeting of this Association was opened at Montreal on the 12th of September, by the President, Dr. Hingston, of Montreal. The profession of the United States was represented by Drs. Kimball, of Lowell, Wing, of Boston, and Brodie, of Detroit, delegates from the American Medical Association, and Dr. Adams, of Island Pond, delegate from the Maine Medical Society. The Association remained in session two days, and several interesting papers were read. Dr. Joseph Workman, of Toronto, was elected President for the ensuing year, and the next annual meeting will be held in the city of Hamilton.

Dr. Matthews Duncan.—The profession in London is again to receive an accession of strength from Edinburgh. Dr. Matthews Duncan has accepted the post of Obstetric Physician to St. Bartholomew's Hospital vacated by the resignation of Dr. Greenhalgh. Dr. Duncan is a very popular and influential teacher, and his loss will be greatly regretted at Edinburgh.

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"I am much pleased with the general arrangement, and will recommend it to our class."

Considerably more space than we can allow to it would be required to give a notice worthy of this admirable work. The author has become well known as an authority on the affections of the organ of hearing; and the volume which, after considerable preparation, he now offers to the medical profession, completely justifies his reputation. The number of references to the literature of the subject is very large, and correspondingly valuable.—*New Remedies*, Oct. '77.

This text-book is prepared by an author of great distinction in his specialty, both as a practitioner and a teacher. His right to this distinction is manifest from an examination of the work he now presents the profession. We are constrained to give this book a cordial recommendation.—*Va. Med. Monthly*, Oct. 1877.

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None can read it without being impressed with the immense amount of common-sense which is possessed by the author, as well as natural tact in interpreting the indications of treatment. His style is clear and agreeable, and he has the faculty of expounding the fundamental principles of medicine in such a way as to give them a practical application to treatment. It is, in fact, one of the most interesting, entertaining, and instructive works of its kind that we have ever read.—*Med. Record*, March 17, 1877.

We must say that it is long since we have read so attractive, practical, and valuable a work. It is one that will bear long and close acquaintance, and the more often it is read, and the closer it is studied, the more will its value be appreciated by the practitioner, and the more will the latter become of value to his patient. Watson and Chambers have heretofore been our favorite English medical authors; we now add Fothergill to this list of charming, practical, indispensable writers.—*St. Louis Clinical Record*, April, 1877.

This is a very valuable book, and is well adapted for a young practitioner. We have every reason to thank the author for a practical and suggestive work.—*London Lancet*, March 24, 1877.

He has succeeded in producing a volume that will be found an exceedingly useful companion to the standard works on practice. It abounds in information of value at the bedside, and is eminently practical throughout. — *N. Y. Med. Journ.*, April, 1877.

HENRY C. LEA—Philadelphia.

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VOL. XXXV. DECEMBER, 1877. No. 420.

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CLINICS.

ORIGINAL CLINICAL LECTURES.

Clinical Lecture on Nervousness in the Male. By S. Weir Mitchell, M.D., Physician to the Philadelphia Infirmary for Nervous Diseases.

Many years ago, when we first began to sum up and classify the cases which came to my clinic, at the Infirmary for Diseases of the Nervous System, my assistants called my attention to the large number set down as general nervousness; and I then saw, with some surprise, that so very many of these were men. This was the more notable, because of course the persons who seek help at the Infirmary are mechanics and workingmen chiefly, and therefore hardly such as are presumed to suffer from nervousness.

Under more exact study, by means of referring the cases back to their causes, the number labelled general nervousness has been somewhat lessened, but in each year's report still appears a group in which either general nervousness is the dominant condition, or which at all events I find myself unable to classify under any other heading.

We rarely see this condition delineated in the books. You may read whole text-books about nervous diseases, and see no mention of this striking, this annoying, this disabling condition; or, if spoken of at all, it is as if it were entirely the sad prerogative of woman. We may find it useful, therefore, to look back over some of our cases to see how they originate, what precisely are their symptoms, and to what extent and in what manner we have power to relieve them.

In so doing I do not desire to be considered as wishing to make of general

Published Monthly by HENRY C. LEA, Nos. 706 & 708 Sansom Street, Philadelphia, *for One Dollar a year; also, furnished* GRATUITOUSLY *to all subscribers of the "American Journal of the Medical Sciences," who remit the Annual Subscription, Five Dollars, in advance, in which case both periodicals are sent by mail free of postage.*

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nervousness a disease. Yet does it sometimes present itself here and elsewhere, with so little apparent relation to causal conditions, and with so distinct a group of clinical peculiarities that it is at times hard to do otherwise than so to treat it. For the most part it is the offspring of obvious defects in the nutritive supply, and is plainly related to coincident or precedent changes in the nervous or vascular systems. Sometimes too it is ephemeral, sometimes it is only too lasting, and in a few cases it is due to original defects, and arising at birth is carried to the grave.

As concerns many other symptoms, so also of this. It does not answer to accept the statement of the patient that he is nervous; we want also to know what he means by nervousness; and this brings me to the definition of the term. Perhaps a couple of illustrations may aid us in this study. The first I shall offer is a very good example of a somewhat rare cause of this state, and is a type of the complex symptom or disorder as perfect as we can desire.

C. J., æt. 28, about 5 feet 10 inches high, and weighing 135 lbs., tells me this story: At the age of eighteen he was well, active, and of rather cool and quiet temperament; not in the least a nervous lad. At this time he began to learn segar making, and has been at the trade until a year ago, when he gave it up. He has been in all ways temperate, and curiously enough has not learned to smoke or chew. This trade has, however, been, in my opinion, disastrous to his nervous system, and this is not an exceptional case, as I have seen others who had been in like manner injured by the same occupation. By slow degrees, but more and more each year, this young man has developed a nervous constitution, which he attributes to the work he did, a conclusion in which I fully agree. At last it drove him from the trade, and now he is here for relief. Let us look at the range of symptoms he presents.

He is sallow, and inclines to anæmia. His appetite is fair, his digestion uncertain, good to-day, bad to-morrow; his bowels much like his digestion. I can detect no renal or intestinal disease, and he has never had ague or syphilis. His circulation is poor; his heart feeble; it beats when he is lying down 85, and rises abruptly to 100 when he stands up. A sudden sound, a slight scare, an unlooked for visitor, gives him palpitation of the heart, sense of throbbing in the limbs, and coldness of hands and feet, with local sweats.

He has become emotional also, and gives way readily to grief, or to mirth. He sleeps ill, dreams much, and is liable like a child to night terrors. As to exercise he can work as well as ever, but thinks he tires more than he should do; and he adds finally, I used to be as brave as any body, but now I am afraid of everything. Since he gave up segar making he has been slowly gaining ground, under the use of a variety of tonics.

As a second illustration I turn to my note-books kept during our late civil war.

C. J., æt. 30, a large, vigorous man, was one of the leaders of the gallant storming party which took Fort Fisher. He had, before this, led a life of adventure and danger. Probably it would have been hard to find a more cool, quiet, resolute soldier. He was shot through the right lung, and the ball emerging entered the arm, and injured the median nerve. He had a long series of lung troubles, and the terrible anguish of causalgia (burning pain) in the hand, exhausting suppuration, and constant pain, reduced him in three months to a slightly covered skeleton, and transformed him morally into a peevish, timid child. In this condition he was a type of a nervous man. A sudden noise, an unlooked for letter, the morning visit of the doctor, set his heart beating and made his limbs cold. At the prospect of a hypodermic injection he would shed tears, and he became annoyingly susceptible to the irritative influence of sounds and light.

When we come to ask in what general nervousness consists we shall find, I think, that its prominent peculiarity lies in over-excitability. This is not all of it, but it is a large, perhaps the largest part. The patient is too easily moved, too readily excited. The strong man becomes like the average woman, the woman like the unschooled child, and the symptoms for the most part are not utterly abnormal, but are exaggerations of normal conditions. Many of the characteristics exhibited by the nervous man on the slighest provocation are seen in the normal man at times on rare occasions, under exposure to unusual emotion. A nervous man receives a telegram; he becomes pale, his heart throbs, and he opens the envelope with a trembling hand. It proves to be a message of no moment, but the effects last for an hour. A healthy man might have shown like disturbance under the influence of some sudden announcement of the gravest calamity, while we shall meet with men who under no circumstances show the least outward sign of emotion while in health. The mass of men are naturally free from nervousness, and perhaps the hardening education which the man undergoes is a means of forcing him to repress emotion and to restrain the exhibition of feeling until restraint develops habit. On the other hand, the lonelier lives led by women leave them more free in this respect, and all their training lies too much in the opposite direction to that of men. In either sex early education may do much to restrain acquired or inherited nervousness, while it is quite sure, as I have many times seen, that the most hardy children may be made nervous and emotional by over-indulgence, and by allowing them to grow up without having learned this life's most urgent lesson, that of self-restraint. I have said that the condition I call general nervousness is mainly characterized by a certain readiness to be excited, and it remains to point out the rest of the clinical peculiarities which go to make up a picture which it is perhaps difficult to make sharply definite. With the tendency to be easily moved there is also a certain apprehensiveness which applies both to the possible effects of outside influences, and to the symptoms of the patient himself. What he feels, he exaggerates, and he is alarmed by what he feels; knowing also how certain agencies affect him, he dreads them, and thus learns to shun his fellows and so to avoid the incidents which contact with men brings about. Very nervous persons are also apt to suffer from a sense of confusion upon sudden or prolonged use of the mind, and from being in a crowd, or where there are many speakers.

In all such men, anxiety, fear, embarrassment, are prone to occasion some disturbances in the sphere of motor activities, which are, to begin with, never, in such cases, quite what they should be. Thus in acquired nervousness, the hand is apt to become tremulous, and under emotion of any kind this may increase, so that, when conscious of being observed, it becomes impossible even to sign the name. Under more violent emotion greater disturbances may occur and the tremors become larger, and even pass into the degree of spasm, local or general. All painful emotion is competent more or less to disturb and enfeeble the normal capacity for movement, and in nervous people emotion becomes doubly capable of weakening the limbs, of affecting the speech, even to inhibition of vocal utterance, and of showing itself in the play of the features.

In some cases, the mental or emotional impression disturbs the vaso-motor system, and we have then spasm or dilatation of vessels, violent arterial throbbing, irregular and excited cardiac action. How the extreme of nervousness acts on the battle-field is well known. Sometimes like annoyance is occasioned in acquired nervousness, and emotion provokes urination or motion of the bowels. I have seen more than one nervous man who on leaving home in the morning would be turned back again and again to make water. Mr. Carpenter has long since called attention to the fact that when we watch our automatic movements, and try to make them voluntary, we at once make them difficult. As in nervous people too much attention is apt to be paid to the processes which go on in the body, we find in them in an exaggerated degree just such difficulties in the act of swallowing, of micturition, and, as I have said above, in those grouped habitual movements, such as writing, which have become almost automatic. Exaggerated states of nervousness give rise in men, as in women, to the motor disturbances, which are said to characterize hysteria, and even to many of the psychical peculiarities of that strange state, although only once have I seen a man exhibit the whole range of these phenomena.

The sleep of men in this condition is rarely good, nearly always they go to sleep with difficulty, dream unpleasant dreams, and wake often or early.

When we come to ask ourselves what is the state of the nerve structures which gives rise to the symptoms described, we are somewhat at a loss. It is easy in a large majority of cases to feel sure that it is, however caused, a state of feeble or tardy nutrition with which we have to deal, that it is in turn associated as usual with an extremely unstable state of circulation in the nerve centres, so that states of congestion at one time, and at another of anæmia from vasal spasms may prevail; but, if we seek beyond obvious clinical conclusions to determine just how the nerve cells are changed, we are forced to pause and admit that the theory of feeble nutritive supply fails to explain many of the cases of sudden nervousness such as those which arise from mental shock. I saw a curious case of this kind some years ago.

A young man, æt. 18, while attending his father's funeral, slipped on the wet ground and fell into the grave. From this time he became strangely nervous, was startled readily, grew timid and apprehensive, and at last became unable to write while any one was watching the act. The tremor thus caused at last so increased that he had to give up a clerkship which he held. This condition of system came as it were in a moment, and converted a quiet somewhat resolute person into a nervous invalid. I might quote other cases, the one I have given may suffice. This man remained in good physical health, and was thus in contrast with most cases of acquired nervousness, which as I have already said are at least associated with states of feebleness, if they be not always traceable to these, but although such is distinctly true, the form of trouble causing weakness, innutrition, and anæmia varies, and with its variation the intensity of the nervousness, and even its quality varies. Nor must we lose sight at any time of the character of the patient, for this also must make up a part of the case, and it will be one thing to deal with a case of congenital nervousness made worse by circumstance, and quite another to treat a person at one time firm and cool, and who has merely become nervous through disease or suffering.

It may repay us to run over the causes of nervousness, with such illustrations as our case books afford.

I have mentioned already one case as an illustration of the influence of enfeebling wounds. In like manner we find sometimes extreme cases of nervousness following fevers or exhausting diarrhœas. Every old army surgeon, who recalls the Chickahominy diarrhœas, will recall too the dreadful condition of nervousness to which it reduced many persons.

The connection of general nervousness with neural maladies is also of interest. The victims of general sclerosis, and still more those of paralysis agitans, are apt to suffer horribly from acquired nervousness, while in posterior sclerosis (locomotor ataxy) the patients are often singularly free from nervousness, unless they continue to suffer from the atrocious pain which sometimes continues throughout the whole course of the disease. It is amazing to learn the extent of brain disease which may exist without making the sufferer excitable, timid, tremulous, or in a word nervous. So much may also be said of many cases of brain tumours, and of very many hemiplegias, while affections of the pons and of the sensory tracts, involving hemianæsthesia with pain or obscure unilateral sensations of burning are sure to cause horrible nervousness.

How far visceral disease may cause it depends a good deal on the individual, but more on the organ attacked, as we well know. A poet has said "hope springs eternal in the human breast," and certainly, to judge from the psychical peculiarities of pulmonary disease, he was fully justified. On the other hand, the nervousness and depression which accompany disorders of the abdominal viscera are well known, and gave rise to the adage of the Presbyterian divine that "no man dies a triumphant death who dies of disease below the diaphragm."

The genito-urinary tract in man furnishes in disease remarkable illustrations of the extreme of general nervousness. Distressing examples are supplied by some of the many cases of seminal emissions which we see, and sometimes sexual excesses give us equally signal instances.

The worst cases I have seen were those of sexual excess in the young. I was consulted four years ago by a gentleman, aged 27, from Tennessee, who told me, that when a mere lad he cohabited with a girl several years his senior, and the intercourse was kept up without suspicion until the girl had become a teacher, and the lad was himself seventeen years old. At this time he ceased to see her, but the mischief was done. From the age of thirteen, he had become excitable, emotional, and tremulous on the least sudden noise or mental shock. This increased so, that when he left school at seventeen, he began to shun society owing to his want of self-control. He then improved during a year spent in the country, but the work and confinement of a counting-house again brought back his old trouble, and he began, after two years, to lose the power to write owing to increasing tremor of the hands; a more distressing case I never saw.

Nervousness is a frequent accompaniment of that form of head trouble, about which there are so many theories, but which is most common in the young, or at the close of middle age. I presume that the term nervous exhaustion is as good a label as any. It does not always lead to great nervousness, but it does do so sometimes, as in this rather curious case, which I saw but lately.

M. L., æt. 58, the leader of the bar in a Western city, was forced some years ago to carry on the trial of a most important case, while his wife lay dangerously ill. From this time he began to find that he felt embarrassed when rising to speak, and that he was obliged to urinate always before speaking in court. The mere knowledge of these facts began to trouble him, and soon after he found that his emotions were less under control than they had been. At last one day when about to sign his name, he found that his hand shook, because two gentlemen who were to act as witnesses were watching him. From this time he could no longer write, when overlooked, unless he made the most earnest effort. With these disabling conditions, he began to fail in vigour and appetite, and to become excessively restless and irritable. Under fortifying treatment with long absence from home he became entirely well.

While epileptics are often quite free from nervousness, frequent attacks of vertigo, whether due to aural disease or to other causes, are almost certain to result in general nervousness of the most distressing kind. Where vertigo occasions the condition which I recently described (*Med. Reporter*, lecture on Vertigo) as the vertiginous status, this is notably the case. In this state frequent onsets of vertigo give rise to a permanent sense of instability, and also to confusion whenever prolonged or intense thought is attempted. This I venture to call mental vertigo.

Tobacco is of all causes the most potent in giving rise to general nervousness. Used in excess it makes the heart irritable and feeble, produces tremor and insomnia, and may develop even in sturdy people a high type of nervousness. Its potency is singularly well seen in its effects on people by nature nervous, and in the remarkable manner in which it disturbs many ataxic patients, or those who have paralysis agitans.

I have now an ataxic case which well illustrates this peculiarity. The patient has ceased to have pain, and seems for years to have been at a stand-still. He has made one of those curious pauses in the disease which flatter the patient with the hope of recovery and delude too hopeful therapeutists. The patient is excessively fond of tobacco, and despite all that it costs him will now and then venture to try it again. The result is interesting and always the same. He becomes, after two segars, so emotional that noise, a telegram, a letter to be opened unnerve him, and his voice fails if he has to address a stranger. He acquires tremor of the hands, and writing becomes impossible for a day or more.

Here also is a strange example of neurotic states in the male caused by, first, a peculiar constitution, and, secondly, by extreme abuse of tobacco. Had it been a woman's case, no one would have failed to label it hysteria.

P. L. T., æt. 24, a young merchant, belonged to a family, which offered in the last generation two cases of melancholia and one of epilepsy. Mr. T. was the sole remaining representative. He was always a delicate looking man, of nervous temperament, quick, restless, and anxious. At the age of sixteen years he began to chew and to smoke, and used tobacco in both forms to excess—up to his twenty-third year, when I saw him first. I learned then that he had become more and more nervous, and had twice had fits of alternate tears and laughter, seemingly quite uncontrollable. The night I saw him, he had had a fall, from which he did not rise, but called for help, insisted that his thigh was broken, and was at last carried home on an extemporized litter. When I examined him, his right leg was rigid, the foot extended. The spasm lasted for some hours, while I sat and watched him. When it gave way and the legs began to twitch, he had a general convulsion, then a period of apparent insensibility, then a series of such fits, and at last a remarkable condition of general rigidity. The series ended with an enormous flow of thin and pale urine.

These phenomena recurred at intervals for two years, and I have over and over witnessed in him nearly the whole range of hysterical symptoms. His last attack began with fits of crying, and ended in hemi-anæsthesia and partial loss of power on the same side.

Mr. L. was made well by giving up tobacco, and by a long course of careful physical training.

Among the most potent causes of general nervousness in man, as in woman, is a state of anæmia. It is probably the immediate cause in some of the cases credited to pain—to exhausting discharges, and to maladies of assimilation, to which I have already alluded, and at all events it is a condition never to be lost sight of in the treatment. A remarkable example is to be found in the case of Mr. L. P——, recorded at p. 89 of my little book on *Fat and Blood*, second edition. In this instance the anæmia was remarkable, and the nervousness not less notable.

I have seen children reduced to a state of pitiable nervousness, with feebleness of will and convulsive states not epileptic, owing to unsuspected albuminuria. I am now attending such a case in a lad of the age of thirteen.

I am unwiliing to end without some allusion to treatment, but as to this I must be brief.

A large part of the treatment of nervousness must, of course, resolve itself into the treatment of anæmia, of defects of nutrition, of mal-assimilation, of dyspepsia. I have said that, in one way or another, poverty of blood is most often the true difficulty. It may be due in turn to this cause or to that, but when these have been cured, or helped, there will yet be left the anæmic state, and in some people, when this exists, it is strangely intractable. On this matter, however, I have nothing to add here to what I have recently said concerning the treatment of obstinate states of anæmia,[1] either with or without loss of flesh. The slighter grades are, of course, to be met in the usual ways familiar to all physicians.

But nervousness, whatever be its parentage, demands something more than this. Only too often the symptoms, which make up this annoying state, continue after we have amended the blood losses, which undoubtedly occasioned them. There is, perhaps, in this fact but another example of the persistency of morbid habits. The man whose self-confidence has once been rudely shaken does not speedily reacquire hardihood in the face of disturbing impressions, and we have also to deal with the many instances of nervousness which arise out of moral causes or are of unknown birth. In the cases of women, we can often aid by secluding them for a time from the kind of troubles which keep up the habit; and with men we may reach the same end by cutting them off from their routine lives, through the help of travel and change of scene. Above all, it is useful to give to such persons the out-door life of field sports; and where these cannot be had, it is often wise to induce the sufferer to undergo some gradual course of physical training, since this has in many cases the happiest results. I have over and over again seen the most helplessly nervous men lose their annoyances under such a plan, but it requires both care and patience, because almost all of the more systematic means of physical training are tiresome, and excite none of the interest which belongs to the exercises of out-door life. The difficulty vanishes in the presence of ample means. Said a gentleman to me yesterday, "Colorado in summer, and horseback in winter—these are what cured me of nervousness."

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[1] Fat and Blood—Rest in the Treatment of Nervous Diseases. Lecture—Séguin's Series.

The mental attitudes of the nervous man demand of his physician the most careful attention, nor can we afford to disregard anything in his ways of life or his habits of thought and action. We must determine for him how far and how much he shall use his mind; whether or not it is well for him to continue his work, whatever it be, what his amusements should be. The careful student of such cases will find in the individuality of his cases the need for the most minute of such studies, and, above all, he will learn that the more fully he commands the confidence of his patient the more can he effect. Such people are greatly helped by a word or two of decisive promise or of reassurance, and since a part of the treatment of the acquired habit of nervousness must consist in mental and moral training, it becomes needful at times to make the patient comprehend that he himself has some control over his symptoms, or, at least, that constantly to yield to them is to insure defeat, and that constantly to struggle in a manly way is sure to bring nearer the day of perfect self-conquest.

But, besides these obvious means, we have some agents, the careful employment of which is of essential value in general nervousness. First among them is the use of water in its varied forms of application, a too much neglected therapeutic aid. We have no water-cures in this country conducted on scientific principles, and by men of experience and intelligence, yet much may be done by the aid of the shower-bath, the douche, and the pack in the patient's own home. Alcohol would also have its use, and, indeed, has its use, but it is so immediate and perfect a relief to many people who are physically nervous, that I for one often fear to use it.

Then come the drugs. There is a form of cardiac and vasal irritability which is found in many nervous people, and which is most distressing. I have now a patient who never receives a guest, or even the best-known visitor, without becoming pale, even white to faintness, and without having the most violent palpitations. Another never opens a letter without like symptoms. In such cases full doses of digitalis, long kept up, are most valuable, and are in many cases capable of helping to form a habit of insensibility to such influences when once we have succeeded in bringing the nutritive system into perfect condition.

Digitalis has, I think, no power to aid the other symptoms of general nervousness. It helps the vasal and cardiac troubles, but not the tremor nor yet the mental symptoms, the indecision, the shyness, the timidity, the self-consciousness, as alcohol does, at least for the time.

Of more general value are both opium and cannabis, but neither ought to be used very long, and when taking them the patient should not know what he is taking, and, above all, they should be used in very small doses, and perhaps I ought to say what I mean by small doses. In such cases I give of morphia $\frac{1}{20}$ grain, with $\frac{1}{20}$ of cannabis, and a varying amount of aloæ ex. or rhubarb, and if these doses are too strongly felt, I give even a less amount.

Among the general nerve tonics arsenic stands high, but the secret of its use lies in its long continuance. The bromides are also of the utmost utility. Among them I prefer the lithium bromide, which I introduced into medical use some years ago, and which has now stood the test of my own longer experience, as well as that of many French and German therapeutists, who have come to regard it as the most valuable of the bromides. It should be given in some simple bitter for many months, and in doses of not more than five or ten grains, thrice a day. I often use the bromide of lithium and the bromide of arsenic together in solution.

The valerianates have also their uses, and I am fond of combining the three valerianates of quinia, zinc, and strychnia in the pill form. I am much more doubtful of the prolonged usefulness of such agents as assafœtida and sumbul, which, however, are often effective to tide over periods of increased nervousness.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

A Private Medical Home for Opium Habitués.—Parrish Hall, Brooklyn, N. Y., which has just been opened, offers to those of either sex, who may desire to avail themselves of its advantages, an asylum for the treatment of the disorder to which it is *exclusively* devoted. It is beautifully situated in a suburb of Brooklyn, and it is intended to make it an attractive home for its inmates.

Patients will be treated by reducing their supply of opium to that amount which will suffice without suffering, and thenceforward its decrease, in quantity more or less minute, according to the degree of discomfort attending its withdrawal, meanwhile sustaining and soothing the nervous system by a judicious employment of tonics and nervines, with such other therapeutical measures as the exigencies of each particular case may seem to demand.

Drs. J. B. Mattison and A. M. Mathias are the physicians in charge.

Physicians' Visiting Lists, Prescription Blank Books, and Ledgers.—Several rival publications appear this year to claim professional favour. Lindsay & Blakiston's old established and deservedly popular "Visiting List," which is too well known to require any words of introduction, enters upon its twenty-seventh year.

J. B. Lippincott & Co. have just issued "Wood's Physicians' Vade-Mecum and Visiting List," which, as it is without dates, answers equally well for any year. It is neatly gotten up, and contains twenty-four printed pages of information which may be valuable in emergencies.

"Walsh's Physicians' Combined Call-Book and Tablet" (Washington), as regards general arrangement, is in many respects similar to the preceding.

Robert Clarke & Co. have published the "Physician's Pocket Case-Record and Prescription Blank Book." It is a pocket-book of prescription blanks with stubs with appropriate headings for clinical notes, and it also contains a visiting list. The same firm has also published for office use a quarto book similarly arranged, containing three prescription blanks on a page.

"Walsh's Physicians' Handy-Ledger" will be found very convenient by the busy practitioner. The method adopted is so complete, simple, and handy that the Ledger cannot fail to become popular.

Obituary Record.—At Nashville, Ten., on the 3d of November, aged 71, Paul F. Eve, M.D., Professor of Operative and Clinical Surgery in the University of Nashville.

Prof. Eve was widely and favourably known as a surgeon of vast experience and of considerable learning. In 1857 he was chosen President of the American Medical Association. He was the compiler of an interesting "Collection of Remarkable Cases in Surgery," an octavo volume of over 800 pages, published in 1857. For many years he was the editor of the Nashville Journal of Medicine and Surgery. His last contribution to the literature of his profession was his address on Surgery at the International Medical Congress of 1876.

Dr. Eve was attacked with apoplexy at a patient's bed-side and only survived a few hours.

FOREIGN INTELLIGENCE.

Falling-out of Hair.—Prof. **Erasmus Wilson**, in cases of defluvium capillorum, prescribes a lotion composed of strong liquor ammoniæ, almond oil, and chloroform, of each one part diluted with five parts of spirits of wine or spirits of rosemary, and made pleasant as to fragrancy by the addition of a drachm of the essential oil of lemons. This should be dabbed upon the scalp after thorough friction with the hair-brush. No doubt there are cases in which this lotion must be used with caution, or largely diluted. In cases of alopecia he recommends frictions with a liniment composed of equal parts of the liniments of camphor, ammonia, chloroform, and aconite, to be well rubbed into the bare places daily.—*Med. Record*, Aug. 25, 1877.

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Cerebral Thermometry.—M. **Broca** communicated to the Association Française pour l'Avancement des Sciences, which was sitting at Havre towards the end of last month, an interesting paper on the above subject. We are indebted to our contemporary *Le Progrès Médical*, No. 36, for the following details. M. Broca believes that thermometry will become a valuable aid in the diagnosis of brain disease. He uses very delicate thermometers, and, after applying them to corresponding positions on the two sides, covers with wool the part of the bulb which is not in contact with the skull, in order to guard against any thermic influence which the surrounding air might exercise. M. Broca has usually employed six thermometers, which were placed in sets of three pairs on corresponding parts of the skull. The anterior pair were placed directly behind the orbital apophyses, the middle pair above the ear, and the posterior pair in the occipital region. His first care was, of course, to obtain the average temperature, and to this end he tested the temperature of his *internes* and dressers at the hospital. He found that the maximum temperature of the brain was 34.85° C., and the minimum 32.80° C., the *mean* temperature therefore being 33.82° C. But, further, he found that the thermometers on the *left* side invariably marked a *higher* temperature than those on the *right* side. Thus, on the right side the mean temperature was 33.90°, while on the left side it was a little over 34°. The difference was found to average about one-tenth of a degree; *but this difference is only found when and so long as the brain is at rest.* When the brain is active the equilibrium tends to establish itself, and the temperature figures correspond. M. Broca argues that the left hemisphere is more freely supplied with blood than the right, and that the latter, less prepared and less apt, when brain-work has to be done, requires a larger supply of blood than the left, and hence the temperature on the two sides becomes equalized. Further, M. Broca has found that not only on the two sides of the brain is there a difference, but that this extends to different lobes of the same side; thus he has shown that the temperature of the occipital lobe was only 32.92° C., that of the temporal lobe was 33.72° C., and of the frontal lobe 35.28° C., which is accounted for by the greater functional activity of the latter. Then when the brain is actually working there is a rise of temperature; thus, after reading aloud for ten minutes a rise of about *one half of a degree* can be shown. The clinical bearings of these observations are not less important. M. Broca considers that the thermometer supplies an additional and an important sign of cerebral embolism; he can even diagnose the part of the brain which is deprived of its blood. As the result of his observations, it appears that at the level of an embolism there is a decrease in the temperature. The subject is necessarily in its infancy at present, but with the aid and example of such an authority on matters craniological as M. Broca, we shall hope shortly to be in a position to publish more extensive details.—*Med. Times and Gaz.*, Sept. 15, 1877.

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Cholera from the Laundry.—Incidents confirming the belief that diseases are spread by laundries are constantly reported to us as occurring, not only in England, but also on the continent, and our efforts at reform in this respect have been generally approved abroad as well as at home. Dr. H. Lebert, corresponding member of the French Institute, and recently Professor of the Breslau University, has informed us of several cases which, occurring under his own observations, further illustrate the dangers we have attempted to describe. The last epidemic of cholera which afflicted the inhabitants of Zurich was, it appears, traced to a washerwoman. Without hesitating, and without employing any special precaution, this woman washed the linen belonging to a child who had been ill with cholera, and, as the penalty of her imprudence, contracted the disease, and died from it. The germs thus sown in the laundry were soon propagated, first to the inhabitants of the street, to the washerwoman's immediate neighbours and customers, the scourge afterwards spreading all over the town. Previously there had been no case whatsoever of cholera. It attacked first the child, and was then spread throughout the town by the washerwoman. At Branson, near Martigny, in French Switzerland, Dr. Lebert was acquainted with a sister of charity, who took excellent care of some persons suffering from cholera. When the epidemic was over, the sister devoted herself to washing the linen of her patients. She had escaped the infection in the execution of her duties as a nurse, but fell ill after washing the clothes, and died. The loss of this valuable life was due, therefore, to the want of proper means of disinfection. Finally, Dr. Lebert relates that four washerwomen employed to cleanse the linen belonging to the Breslau Hospital contracted typhoid fever. These women lived in different quarters of the town, but they had all washed linen taken from typhoid patients; thus it is probable that they were also victims of the carelessness so universally displayed when dealing with soiled linen. It is very unlikely that four washerwomen, each living in different parts of the town, would all have simultaneously fallen ill with the same disease, but for the fact that they were brought into personal and prolonged contact with what would appear to have been contaminated clothing.—*Lancet*, Oct. 27, 1877.

The British and Foreign Medico-Chirurgical Review.—We regret to find in the October number of the *British and Foreign* the announcement of the discontinuance of this well-known periodical. Commenced thirty-eight years ago, under the able editorship of the late Sir John Forbes, it soon deservedly attained the high position in medical literature which it held for a long number of years. Its reviews were able and learned expositions of the subjects of which they treated, and were contributed by authors who were themselves leaders in the science of the day.

Under the successive editorships of Sir John Forbes, Dr. Parkes, Dr. Carpenter, Dr. Sieveking, and Dr. J. W. Ogle, and with such able contributors as Neil Arnott, William Baly, Golding Bird, George Budd, Sir James Clark, Wharton Jones, Aston Key, Sir Ranald Martin, Richard Owen, William Sharpey, and others of like distinction, it would appear unnecessary to say that the "Review" fully met the needs of the students in the profession.

In seeking for a cause for the late decline in its circulation, until it has finally reached a period "when to continue to publish it would incur an annual loss," the publishers assign it to be in that "a quarterly, with its thoughtful articles and well-digested reviews, is no longer appreciated as formerly." We should be sorry to think this of the present generation of medical men in Great Britain. The true cause, we are inclined to believe, is, and we regret to say it, the well known fact that of late years there has been a most noticeable decadence in the ability displayed in the pages of the "Review," until it has at last ceased to be, as it was of old, indispensable to its *clientèle*. The many readers of the "Review" in this country, who had hoped that it would again see better days, will be sorry to learn of its discontinuance.

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The Chair of Clinical Surgery in the University of Edinburgh.—Mr. Thomas Annandale has been appointed to fill the vacancy created by the transfer of Mr. Lister to London. Mr. Annandale is an adherent of the antiseptic method.

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PROSPECTUS FOR 1878.

In commencing the second half century of the "American Journal of the Medical Sciences" the publisher has pleasure in announcing additional attractions in the Journal and its adjuncts which, it is hoped, will render these periodicals more than ever indispensable to every reading physician.

In the "Medical News" there has been commenced a series of original American Clinical Lectures, national in its character, and unsurpassed in variety of interest. The arrangements for this are not as yet completed, but already there has been promised the co-operation of the following distinguished gentlemen:—

S. D. Gross, M.D., Prof. Surgery Jefferson Med. Coll., Philada. Austin Flint, M.D., Prof. of Prin. and Prac. of Med. and Clin. Med. Bellevue Hosp. Med. Coll., N. Y. S. Weir Mitchell, M.D., Phys. to Philada. Infir. for Nervous Dis. T. Gaillard Thomas, M.D., Prof. of Obstet., &c., Coll. Phys. and Surg., N. Y. J. M. Da Costa, M.D., Prof. Prin. and Prac. of Medicine, Jefferson Med. Coll., Philada. Roberts Bartholow, M.D., Prof. Theory and Prac. of Medicine, Med. Coll. of Ohio. T. G. Richardson, M.D., Prof. Surgery, Univ. of La., N. O. William Goodell, M.D., Prof. of Clin. Gynæcology, Univ. of Penna. Fordyce Barker, M.D., Prof. Clin. Midwifery, &c., Bellevue Hosp. Med. Coll., N. Y N. S. Davis, M.D., Prof. Prin. and Prac of Medicine, Chicago Med. Coll. L. A. Duhring, M.D., Clin. Prof. of Dis. of Skin, Univ. of Penna. Theophilus Parvin, M.D., Prof. of Obstetrics, &c., Coll. Phys. and Surg., Indianapolis. Lewis A. Sayre, M D., Prof. Orthopædic Surg. and Clin. Surgery, Bellevue Hosp. Med. Coll., N. Y. John Ashhurst Jr., M.D., Prof. Clin. Surgery, Univ. of Penna. D. Warren Brickell, M.D., Prof. Obstetrics, &c., Charity Hosp. Med. Coll., New Orleans. William Pepper, M.D., Prof. Clinical Medicine, Univ. of Penna. J. Lewis Smith, M.D., Clin. Lect on Dis. of Children, Bellevue Hosp. Med. Coll., N. Y. William F. Norris, M.D., Clin. Prof. of Dis. of the Eye, Univ. of Penna. P. S. Conner, M.D., Prof of Anat. and Clin. Surgery, Med. Coll. of Ohio. Thomas G. Morton, M.D., Surgeon to Penna. Hospital. F. J. Bumstead, M D., Late Prof. Venereal Dis., Coll. Phys. and Surg., N. Y. J. H. Hutchinson, M.D., Phys. to Penna. Hosp. F. Peyre Porcher, M.D., Prof. Therap. and Clinical Medicine, Med. Coll. of S. C. Christopher Johnson, M.D., Prof. of Surgery, Univ. of Md. William H. Van Buren, M.D., Prof. Prin. and Prac. Surg. and Clin. Surgery, Bellevue Hosp. Med. Coll., N. Y. S. W. Gross, M.D., Surg. to Philada. Hospital. William Thomson, M.D., Prof. of Ophthal. and Aural Surg., Jefferson Med. Coll., Philada.

In the "Library Department" of the "News" will be completed during the year Dr. Stimson's translation of Gosselin's "Clinical Lectures on Surgery," to be followed by another work of equal practical value. New subscribers for 1878 can secure the portion of "Gosselin" published during 1876 and 1877 by a remittance of $1 50, if promptly made.

The "American Journal of the Medical Sciences" has the promise for 1878 of its usual variety of important contributions from distinguished members of the profession in all parts of the country. Special attention will be bestowed, as heretofore, on its Bibliographical Department and its Quarterly Summaries, to keep its subscribers informed as to all subjects of professional interest from every quarter.

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CLINICAL LECTURES
ON
SURGERY.

PART I.

SURGICAL DISEASES OF YOUTH.

LECTURE I.

INGROWN TOE-NAIL AND ITS TREATMENT.

Considerations upon the diseases of youth—Distinction between lateral onychia, semilunar onychia, and sub-ungual onychia—Origin of lateral onychia or ingrown toe-nail—Etiology—Influence of age, social position, sex, inappreciable general cause—Treatment—Local anæsthesia by means of ice and salt.

GENTLEMEN: I never fail, whenever the occasion presents itself, to call your attention to the influence exerted by age upon the development, course, and prognosis of surgical diseases, and the consequences of the operations necessitated by them.

The surgical pathology of childhood has already been made the subject of special studies, and if that of old age has not been treated of in separate works, yet our authors have not omitted to mention whatever there is of importance in its relations with the diseases of each organ and system.

In most of the descriptions which have been handed down to us, the classical authors have taken the adult age as the type. They have noted certain details peculiar to infancy and old age, but have forgotten the period of adolescence, the limits of which, without being rigorously determined, lie between the ages of 15 and 25 years, a period in which occur the development of puberty and the completion, sometimes rapid and irregular, of the growth of the skeleton.

I do not claim that this age is exposed to diseases which are developed during no other. I know, on the contrary, and I shall often have occasion to tell you, that most of those of which it offers examples are quite frequent in childhood, and that some are also seen in the adult. I claim only that certain diseases are notably more frequent during youth than at other ages, and that the prognosis and treatment are thereby affected to an extent which our predecessors did not notice, and upon which my attention has been fixed for a certain number of years.

I shall presently operate before you upon a young man 16 years old, who offers you an example of one of the diseases of youth, an ingrown toe-nail.

His history, in brief, is this: His constitution is good, and he has not recently had any serious disease. For the last two years he has been employed in a pastry-cook shop, and compelled to remain on his feet a great part of the day. Four months ago he noticed an excoriation at the outer side of the nail of the great toe of the left foot. He took no care of it, and continued to walk. But the excoriation increased; and, as it was lodged in the cutaneous groove which receives the edge of the nail, it is probable that it was kept open by the irritation constantly excited in it by this edge. The oozing grew more and more abundant, and the sore at last became the seat of smarting pains, which were more severe in the evening. Suppuration also increased when the patient had walked all day. When he woke in the morning, the pain and swelling were very moderate. On different occasions the swelling increased, was accompanied by a redness which spread over the dorsal surface of the toe, and the patient was compelled to keep the bed for twenty-four hours. Another time the redness was accompanied by a little fever, and appears to have assumed the character of an angeioleucitis. No serious treatment has been given it; and the young man, after another exacerbation which compelled him to stop his work, decided to ask us for the attentions necessary to a complete cure.

I shall say no more about the functional symptoms; they are those of which I have just spoken. They are light, are accompanied by no alteration of important functions, and might have been borne much longer were it not that they interfered with his walking and thus prevented the exercise of his calling.

As to the physical symptoms, they also are very simple; you have noticed them when comparing the left toe with the right one, which is healthy. They consist in a rather hard and, as it were, hypertrophied swelling of the cutaneous rim which is found at the outer side of the nail, and in the existence of a narrow solution of continuity, elongated, granulating, reddish, and suppurating, which occupies the entire depth and the anterior two-thirds of the lateral groove corresponding to the edge of the nail. As there is some tumefaction, this groove is deeper than usual. Pushing aside the cutaneous rim, we see that the small vegetating wound extends not only to the bottom of the groove, but also around the edge of the nail, and is continued under it, if not throughout its whole extent, at least over that portion where the attachments of the nail to the skin are not very firm; and this portion is larger than usual, because the ulceration has destroyed part of the skin which established the connection.

There is no doubt as to the diagnosis: we have here to deal with the disease described under the name of *ingrown toe nail*, one which I sometimes call *lateral ulcerated onychia*, in distinction from two other rarer varieties: semilunar ulcerated onychia (extending all around the nail), and sub-ungual ulcerated onychia. The term ulcerated onychia has the advantage of denoting that it is not the nail which is diseased, that it is the neighbouring skin which has been excoriated, and that this excoriation is kept up by the edge of the nail, which acts upon it as a foreign body. I wish I could tell you exactly how the ulceration begins in such a case, and especially how it began in the case of this young man. But I have never had the opportunity to see the beginning. It may be that it is simply traumatic, the skin which corresponds to the edge of the nail having been cut at a certain moment by this edge, either naturally sharp, or rendered so by careless trimming of the nail, which in addition may have brought the edge against a part of the skin which is thinner and less protected by the epidermis than those portions which are normally in contact with it.

It may also be that the origin is pathological, that it may have begun in a moist erythema or slight herpes aggravated and ulcerated by the pressure of the edge of the nail I have been consulted by two patients who had had for a few days the slight skin disease which I have just mentioned. I made them keep the room, take a warm foot-bath, and place, morning and evening, some subnitrate of bismuth in the groove of the nail. In a few days the disease disappeared; but I have asked myself whether, if no care had been taken, and if the patients had continued to walk, it might not have ended in an ingrown nail.

Whichever of these may be the origin, we can still draw two conclusions to direct the prophylaxis: the first is that we must advise every one, and especially adolescents, for they are chiefly exposed to this trouble, not to cut off that part of the nail which covers the subungual cuticle, or, if you prefer, not to carry the section beyond the epidermic adhesions of the border of the nail, so as not to bring this border, made a little sharper by the trimming, into contact with a part of the skin which is thin and unprovided with epidermis. The second is that pressure from below upwards, while walking, forces the already more or less altered skin against this edge, and that consequently rest is necessary to increase the chances of a cure when the patient decides not to undergo an operation.

But if we are not quite sure of the anatomical pathogeny of the ingrown toe-nail, we know very well the conditions which favour its development and act as predisposing causes. · These conditions, which have certainly affected our patient, are three in number: age, social position, and sex.

1. *Age.*—The patient is 16 years old. You may think it is only chance which has given us this occasion to see an ingrown toe-nail upon a person of this age. No; on the contrary, it is very common in adolescents. For the last ten years I have kept a record of all the

cases of incurvation of the nail of the great toe[1] which I have treated. Fifty-four of these were upon boys (I will speak of the girls in a moment), and are thus grouped according to the ages.

I saw none before the age of 14 years. I do not claim that it does not exist, but I believe it to be very rare. My table begins at 14½ years:—

Patients 14½ and 15 years of age	2
" 16	12
" 17	8
" 18	6
" 19	6
" 20	7
" 21	2
" 22	2
Patients 23	2
" 24	1
" 25	2
" 26	1
" 29	1
" 30	2
	54

You see then that from 14½ to 20 years we have 41 cases; from 21 to 25 years 9 cases; from 26 to 30 years 4 cases. It must also be noted that in one of my two patients aged 30 years, the disease began when he was only 18 years old. I was right then in telling you that adolescence predisposes to this disease.

But how explain this influence of age? I do not hide from you that this is a difficulty which we shall encounter in some of the other diseases of youth. I suppose we must consider it due to rapid growth, in consequence of which the nail becomes a little too large for the surrounding skin, or, the toe being compressed in shoes which have become too small, the edge of the nail is pressed too firmly against the cutaneous fold. You see, gentlemen, I do not exclude the other local causes, just as I admitted a moment ago the possible intervention of general ones. But the existing local causes, the rapid growth of the nail, the lengthening of the foot, pressure upon it by shoes that have become too small, enable us to understand why incurvation of the nail is more likely to occur during the period of growth than at any other time.

2. *Social Position.*—My 54 patients belonged to my hospital practice. In private practice I have treated only two young men for ingrown toe-nail. This is doubtless due to the fact that youths of the labouring classes take less care of themselves at the beginning, walk and fatigue themselves more, and, above all, do not supply themselves soon enough, when growing rapidly, with new shoes in which the toe would have more room.

3. *Sex.*—Its influence is proved again by figures. During the ten years I have treated in all ten women, seven of them in the hospital, three in private practice. As in the case of the males, here too we see the influence of adolescence, for eight of my patients were between the ages of 15 and 22.

1 was	15 years old.
2	16 " "
2	17 " "
1 was	19 years old.
2	22 " "

Of the last two, one was 30 years old, but the disease began at the age of 13 years; the other was 43 years old.

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[1] Ingrown toe-nail occurs much more rarely on the other toes, and is then due to a general rather than to local causes. I speak now only of that of the great toe.

If you ask me why growing girls are less exposed to ingrown toe-nail than boys are, I answer, without, however, being too affirmative on this point, that I attribute it to this, that in general girls walk and fatigue themselves less, take rather better care of themselves, and do not so often grow rapidly.

But must we not also admit some general cause in this etiology? Let me explain. There are appreciable general causes, and others which are inappreciable. I have found more of the former in the 64 cases which I have treated. You have heard me speak sometimes of syphilitic onychia. But you notice, or you will notice hereafter, that in such cases the ulceration, instead of being limited to the edge of the nail, extends all around the matrix and sometimes to the sub-ungual dermis; also that the great toe is not alone affected, the others are attacked at the same time. In the real ingrown toe-nail, that of youth, the disease occupies exclusively the lateral border of the nail and the great toe. I should also tell you that it is much more frequent on the outer[1] than on the inner side, and that when it occupies the latter the former is almost always affected at the same time. In the statistics which I have carefully kept on this point, I find the inner side alone affected only three times, both sides of the same nail four times, and in the forty-seven other cases the outer side alone.

As to the other general cause which we meet with so often in the diseases of youth as well as in those of infancy, scrofula, I have had no reason to think it has affected my patients.

There remain then the inappreciable general causes. Without defining them, we are obliged to admit their influence in many diseases; it is likewise probable that they exist in this one. This will explain the occasional development of an ingrown toe-nail during adult life, that is to say during a period when the predisposing causes of which I have spoken exist to a much less degree or not at all, also why in certain youths both sides of the nail are affected, and in others both feet either at the same time or successively. I have occasionally seen ingrown toe-nail, appear, sometimes on the great toe, sometimes on one of the others, during convalescence after an acute disease or in the course of a chronic one, under conditions, in short, where it was impossible to lay it to the charge either of growth, or walking, or even the fatigue of standing. These cases are not included in my statistics. I attribute them to one of these inappreciable and unnamed general causes, and in any case they deserve separate study, since their treatment should not be the same, and an operation should be considered useless and even dangerous.

This slight affection is certainly not serious, since it compromises neither health nor life. It has only the inconvenience of making it painful to walk and thereby interfering with the business of those who gain their livelihood by walking or standing most of the day. Another peculiarity, and one which has especially interested the surgeons, is its tendency to return, even after serious operations, but the notions which I have given you upon the influence of age diminish greatly the importance of this fact. The ingrown nail of youths may return, but only during the period of life which predisposes to it. Youth once passed, the trouble does not return after treatment. Suppose then, that, in spite of your care, one or two relapses take place while your patient is between 16 and 22 years of age. After that time you may be sure the trouble will not re-appear. Moreover, we possess means which protect even the adolescent from a return of the affection.

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[1] Referring to the median line of the body, not of the foot.

Treatment.—There are few surgical diseases for which so many local treatments have been proposed. I have counted as many as seventy-five of them, all suggested by honourable surgeons moved by the desire to protect the patients from relapses; they had not learned that relapses cease with the period of youth. Of these means, some are simple, and consist of dressings repeated once or twice each day; others, of partial or complete extraction of the nail; others, of varied and complicated operations with the knife or caustics, generally supplemented by the extraction of more or less of the nail. I shall describe only the three principal methods and the two or three processes to which I advise you to give the preference in your practice.

1st Method. *Dressings.*—This method, to which I attach the name of Fabrizio d'Aquapendente, an Italian surgeon of the 16th century who wrote a large work on surgery, consists in interposing between the nail and the ulceration a foreign body, which separates them from one another and prevents the second from being continually irritated by the first. For this purpose Fabrizio used lint, as we do also to-day.

A few months ago you saw me treat in this way a woman who came every other day to the consultation, and who for various reasons was not willing to allow the nail to be torn out. I passed every time with a spatula a few threads of lint under the outer edge of the nail. I took pains to press it past the edge and well under the nail, and then completed the dressing with another pad of lint, which I placed on the upper surface of the corresponding cutaneous ridge, and kept in place by means of a strip of diachylon plaster wrapped two or three times around the toe so as to press the pad well under the ridge. After six weeks, during which this dressing was renewed every other day, the ulceration was cicatrized, the tumefaction about it diminished, and the edge of the nail sufficiently separated from its cutaneous groove. I told the patient to wear broad shoes and not to cut the nail short, especially on the outer side. Since then I have not seen her, but have heard that there has been no return of the trouble.

Instead of lint you may use a strip of tin (Desault); or of lead (Boyer); or even of cork.

I advise you, gentlemen, to familiarize yourselves with one of these dressings, and, in my opinion, the simplest is the one with lint. You may have occasion to use it in the earlier stages, or in the later ones when the patients have the time to take care of themselves, andare able to remain six or eight weeks without walking, or walking but little. For this interposition of a foreign body is not easily borne when the pressure upwards, which is produced by walking or standing, constantly forces the inflamed skin against it; and, although not so sharp and irritating as the edge of the nail, it is still in a certain measure a cause of irritation.

I have not thought of employing this treatment for this patient, because it requires too much time, and because confinement to the bed or to the room is undesirable at his age. I may also add that these dressings have the inconvenience of being quite painful at the moment of application and for an hour or two thereafter. And, finally, this mode of treatment is one of those which expose the most to a return of the trouble. You will see it succeed on persons in easy circumstances, especially women, who not only can give themselves the needed time and rest, but, once cured, can favour themselves and walk but little. Our young man, on the contrary, is obliged to gain his living by his legs, and as soon as he is cured he will have to begin at once to walk, so that the chances of an early return of the affection would be great.

2D METHOD. *Simple Extraction.*—This operation, which is applied sometimes to the whole of the nail, sometimes only to the half which is ingrown, is intended to remove the body which acts as an irritant, and give the little fungoid ulceration time to heal. Of course, the nail grows again, for in removing it we do not destroy that portion of the skin which produces it, and notably the deep posterior fold called the *matrix.* I will describe in a moment the method of extraction which I prefer, before performing the combined operation of which it forms part.

This method has the real advantage that it can be performed without pain, and is followed by a prompt cure, for at the end of five or six days, during which rest and a protecting dressing alone are needed, the raw surface has become dry and the ulceration healed. But, unfortunately, it is often followed by a return of the trouble. I cannot give the exact figures, but I remember to have seen in the service of Velpeau a certain number of patients who returned at short intervals to undergo the operation a second, third, or fourth time. As I have already told you, I know that after a while adolescence ends, and with it the tendency to the reproduction of the disease; but still it is an inconvenience which we should seek to avoid as much as possible, and in this respect the combined operations are a little more successful.

3D METHOD. *Combined Operations.*—These are the ones by which it is proposed to remove both the edge of the nail and the cutaneous ridge upon which the fungoid granulations are found. For this purpose some authors have recommeded caustics; others have combined extraction of the nail with excision of the fleshy parts. To this last operation I give the preference, but, after tearing out the nail, I cut off only a portion of the ridge, so as to have a wound which is smaller, will cicatrize more promptly, and is less likely to give rise to erysipelas or angeioleucitis, and, moreover, is sufficiently removed from the articulation of the two phalanges to avoid the chances of provoking suppurative arthritis. I propose, also, to remove on the affected side a considerable portion of the matrix, so that the new nail may be much narrower than the old one. You understand that this reduction of the breadth of the nail diminishes the chances of a relapse, which are greater the nearer the edge of the nail is to the bottom of the groove in which it lies. I have several times measured the new nail a few months after this operation, and have always found it narrower than that of the other foot. I have already published my method of performing this operation,[1] and I shall now execute it before you in the following manner:—

1*st Time.*—To prevent pain I shall make use of a freezing mixture composed of equal parts of pounded ice and salt. The mixture will be made just before it is to be applied, and will be placed in a small bag made of thin muslin. I shall place this bag upon the dorsal surface and the sides of the great toe, cover it with a compress, and leave it in place for two minutes, when I shall remove it to see if anæsthesia has been obtained. If I find the skin still red and sensitive I shall re-apply the mixture and leave it until sensibility is entirely deadened.

I recommend this mode of anæsthesia in this operation, because, since the parts upon which we are to operate are superficial, it is useless to seek to dull the sensibility of the deeper ones, as we have to do when our incisions are carried beyond the limits of the skin, and consequently we are not embarrassed by the pre-occupations of general anæsthesia produced by inhalation. Local anæsthesia may be obtained by refrigeration with ether, but this process requires more time and does not produce so complete a result; and as the operation we are to perform is very painful, we must deaden sensibility as completely as possible.

2*d Time.*—Standing at the foot of the bed, and at the affected side, and having seized the toe firmly with my left hand, I shall pass one of the blades of a strong pair of scissors on its side under the nail as far back as the matrix, then turning the edge upwards, and closing the scissors quickly, I shall divide the nail lengthwise into two equal parts. Then with a stout pair of forceps I shall seize each piece in turn and tear it out. Sometimes the nail is friable and breaks; then of course the fragments must be successively removed. Do not forget that for this purpose you need a very strong pair of forceps, one whose blades will not twist under the violent effort you will have to make.

3*d Time.*—This consists in the excision of a strip of skin, leaving a wound which, though small, comprises in front a portion of the cutaneous ridge and abnormal vegetations, and behind the external lateral portion of the matrix. For this I shall take a bistoury, and make, behind, at the junction of the transverse and lateral portions of the matrix, a transverse incision one-quarter of an inch long through the entire thickness of the skin, and then carry it along the summit of the lateral cutaneous ridge to its anterior extremity. I shall then dissect inwards the flap thus formed, so as to include in it the entire length and thickness of the sub-ungual dermis for a breadth of nearly one-quarter of an inch, that is, its antero-lateral portion and the corresponding piece of the posterior portion or matrix.

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[1] Gosselin, Sur le Traitement de l'Ongle incarné, Gazette Hebdomadaire, 1853, tome i. p. 7.

I shall finish with a protective dressing made of a cloth covered with cerate, lint, compresses, and a narrow band. This dressing will be renewed every day for eight or ten days, at the end of which time the patient will be able to leave his bed, and perhaps the hospital.

During the last year you have seen me treat several patients in this way. In no case did any complication occur. In all the little wound healed, and the dermis dried in a length of time which varied from eight to fifteen days. When the patients left us they had no nail, but they could wear a shoe and walk by placing a rag or a little carded cotton over the toe. In only one of my sixty-four cases was the cure delayed by an angeioleucitis of the foot and leg, followed by small multiple abscesses along the course of the lymphatic vessels, and although delayed the cure was still obtained.

Upon none of the patients whom we have had this year have we as yet seen any return of the affection. But I have already told you that my method, although it removes the ulcerated skin and diminishes the breadth of the nail, still does not always prevent a relapse. In only five of my sixty-four cases has the disease returned, three boys and two girls, but I have had no example of a second return. Consequently the most unlucky have had to undergo the operation only twice. I have seen again several of them who had then passed the age of 25 years, and in whom the affection had not returned, and I have yet to see a relapse in any of my patients who have passed the period of youth.

LECTURE II.

SUB-UNGUAL EXOSTOSIS OF THE GREAT TOE.

Description of antecedents and symptoms—Diagnosis—Importance of age and sex; it is a disease of youth, more common in girls than in boys—Anatomical characteristics—Analogy to epiphysary exostosis, and to naso-pharyngeal polyps—Treatment—Possible relapse—Cessation of this tendency after adolescence.

GENTLEMEN: I have here a small piece which I removed the day before yesterday in your presence from the great toe of a girl 20 years old. She was a dressmaker who had been admitted into the hospital a few days before to be treated for a tumour as large as a small nut occupying the interior and superior surface of the left great toe at its anterior extremity. This tumour was first noticed a year ago. It was then much smaller and gave no trouble, but during the last six months it grew larger and was troublesome. The patient was incommoded by her shoe, suffered when walking, limped at times, and could not walk any distance. During the last few days the tumour became excoriated, suppurated a little, and caused redness, itching. and swelling of the whole toe. The patient, finding herself then quite unable to walk, applied to us for relief.

The tumour was round, reddish, partly hidden by the nail, which was pushed upwards, and partly uncovered by the frequent cuttings of this nail which the patient had made in the hope of thus being able to relieve the pain caused by its constant pressure upon the tumour. At the points thus laid bare, the lump showed us a very adherent reddish covering, which was nothing else than the sub-ungual dermis intimately united to it. At the anterior extremity this skin was redder, and consequently more vascular, than at the other points; at the same time it was thickened and flabby, and presented an appearance similar to that of the vegetations about an ingrown nail. At the upper part you saw a round superficial ulceration, one-quarter of an inch in diameter, presenting a grayish surface and a sero-sanguinolent exudation. I asked the patient if this ulceration had been caused by the application of a caustic, for I have seen two cases in which an attempt to destroy the tumour with Vienna paste was unsuccessful and left behind a small rebellious ulcer. Such, however, was not the origin in this case; the solution of continuity was probably occasioned and kept up by the pressure of the shoe, and it was this that caused the inflammatory symptoms a few days before the patient entered the hospital. You will find this peculiarity mentioned in some of the observations published upon this subject, especially in Dupuytren's *Leçons Orales.* Examining the consistency of the tumour, we found it flabby in the superficial layers, and hard and bony in the deep ones. Finally, seizing the tumour with the left hand and holding the foot and toe firmly with the other, I found there was no mobility, that it was firmly adherent to the terminal phalanx.

After having determined the preceding symptoms, you saw that I did not hesitate a moment about the diagnosis: *sub-ungual exostosis of the great toe.* What other affection could it have been? It was not a phlegmon nor an abscess, for it presented neither the softness, nor the pastiness, nor the fluctuation found in those, and furthermore had grown much more slowly. The intimate adherence of the tumour to the phalanx left no doubt as to its origin in that bone. But was there no reason to think it might be an osteo-sarcoma? The ulceration, the oozing, at times sero-sanguinolent, the constant pain might have awakened this thought. Indeed, I treated at the Hôpital de la Pitié a young girl sent to me by a physician who thought she had a cancer of the great toe. He had been led to form this diagnosis by the presence of an ulceration and suppuration, similar to those which we have just seen, and coincident with a larger volume and more abundant vegetations.

But I rejected such an opinion, and admitted an exostosis, for the following reasons:—

1st. *The Age.*—Although I have seen an example of sub-ungual exostosis in a woman 47 years old, it is none the less true that this, like ingrown toe nail, is a disease of youth. Dupuytren, who was the first in France to give a clear and methodical description of this affection, reports five cases in which the patients were from 20 to 25 years old, but in all of them the disease began at about the age of 18. Dupuytren, however, although mentioning the age of each of his patients, did not call attention to this fact. Legoupil,[1] on the other hand, clearly points out adolescence as one of the principal predisposing causes, for, he says, "most of the cases within my knowledge are confined between the ages of 15 and 20, and I found none who had passed their 26th year." It is certain that Legoupil speaks not of cases which he had himself observed, but of those which he found recorded, and, indeed, it is incontestable that almost all such belong to the end of the period of adolescence, although the authors do not call attention to this fact. Still it is easy to understand how this etiological idea may have escaped the notice of many persons. Sub-ungual exostosis is rare, and each surgeon, having seen only a few examples, and having seen them only at long intervals, may have considered the similarity of age as the result of chance. As for me, I have preserved the record of only eight patients. Seven of these were aged as follows: two, 19 years old; two, 20; one, 21; one, 24; and one, 25; but in all the disease commenced one or two years before I saw them for the first time. I said just now that I had had one patient 47 years old; that proves that this, like ingrown toe-nail, may be developed in the adult; but it is exceptional, and we may consider it the rule that sub-ungual exostosis is a disease of youth.

2d. *Sex.*—Our patient was a young girl. Now, the analysis of the cases shows that, unlike ingrown toe-nail, this affection is more common among girls than among boys. Dupuytren's five cases were all girls. Legoupil points out that the ten cases of which he knew were all young girls. Of mine, five were girls, three were boys. Although in the printed records you find girls mentioned more often than boys, still you will meet with the mention of boys often enough to be authorized to believe that the proportion differs from that which exists for ingrown toe-nail. I can offer you no figures to prove this, since I have only eight personal cases, and that is insufficient to establish a rule. But connecting with my results the impression left upon me by reading published cases, I believe that relatively there are more boys affected with sub-ungual exostosis than there are girls affected with ingrown toe-nail. As to the diagnosis, however, the question remains the same. The sex was a circumstance favourable to the opinion that it was an exostosis rather than a cancer, and it was from this point of view that I was led to speak to you of the influence of sex. I am absolutely unable to explain this predilection for the female sex, a predilection which you will not find in the other diseases of youth.

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[1] Malgaigne's Revue Médico-Chirurgicale, tome viii. p. 21 (1850).

3d. As to the ulceration, the exudation, and the pains, which remind us of ulcerated cancer, you must remember that these incidents are quite frequent in sub-ungual exostosis. The cause is topographical; it is the pressure of the shoes while walking that occasions them. The pain is furthermore due to the sensibility, normally very great, of the sub-ungual dermis which is affected by the inflammation, to the ulceration, and the lack of protection by the nail, the limits of which are surpassed by the tumour and are generally much reduced by cutting, as in this case. This cutting off of the nail is all the easier because the nutritive trouble produced by the morbid growth is followed by the loosening of that part which covers it.

Perhaps if the tumour had been less voluminous it might at first have been taken for a simple ingrown nail. You noticed, however, and this is always the case in sub-ungual exostosis, that the vegetations were not lateral, but placed above and in front. I admit that the anterior edge of the nail may have contributed to their formation, and that consequently they may have had the same origin as those of ingrown toe-nail, but in primitive and uncomplicated ingrown toe-nail the affection is upon the side and not on top, and it is not accompanied by a tumefaction which raises the front part of the nail, and advances beyond the anterior edge, as is the case here.

The diagnosis having been made, we have to ask ourselves whether the etiological diagnosis ought not to be completed by the indication of some general cause other than the age and sex. You often hear us speak of syphilitic exostoses. I have examined and questioned this patient, and have not found, and have no reason to suspect, syphilitic antecedents. Even had I found them, I should doubtless not have attributed this exostosis to them, for my own experience and that of other surgeons have taught us that sub-ungual exostosis of the great toe, and that of the other toes, and also those of the fingers,[1] are not of syphilitic origin. The same is true for the other exostoses of young people, and we find in this circumstance another reason to justify the separate description of the diseases of youth upon which you hear me so often insist.

Pathological Anatomy.—Of what was this tumour composed? Before removing it I told you what it would probably prove to be, but now that we have the piece in our hands I can give you a more exact account. On the surface you see the sub-ungual dermis, below it, but intimately united with it, is a white layer, fibrous in appearance, one-eighth of an inch thick, which seems to the naked eye to be formed of dense fibro-cartilaginous tissue, but the microscope fails to discover any cartilaginous cells in it, and shows it to be formed in reality of very dense fibrous tissue. Under this, and again connected closely with it, you see a mass of bone, nearly one-quarter of an inch thick, formed in part by the abnormal growth, and in part by the portion of the phalanx from which it came. The tumour then was not a pure exostosis, it was an exostosis covered by fibrous tissue, or, if you prefer, an osteo-fibrous growth. In this respect it differs from other exostoses of youth, which are formed exclusively of bony tissue, and it has some analogy to naso pharyngeal fibromas which spring from the bone, but are formed exclusively of fibrous tissue. That is to say, that in adolescents, and by the fact of the growth of the body, perversion of nutrition leads sometimes to an excess of bony tissue attached to the bones themselves, sometimes to an excess of fibrous tissue attached to the periosteum, sometimes to a simultaneous exaggeration of both bony and fibrous tissues It is this last variety which we have before us, and this was also the case in the other examples which I have had occasion to examine. There may be cases in which the exostosis is purely bony, but those which I have observed have been such that I am authorized to tell you that the tumour generally is mixed, that is to say, osteo-fibrous.

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[1] Sub-ungual exostosis may be developed upon the other toes and upon the fingers. All authors have pointed this out. I have had one example upon the third toe, and one under the nail of the index finger of the right hand. But it is infinitely more frequent on the great toe.

Treatment.—There is no reason to hope that these tumours can be removed by internal treatment, and I have no facts even which permit me to believe that, left to itself, the disease will get well by simple increase of age. I had then to offer to our patient only an operation, and this is the one you saw me perform. First I removed the nail after local anæsthesia by means of a mixture of ice and salt as in the operation of ingrown toe-nail; then I isolated the tumour by two curved incisions, and detached it with a strong bistoury, hollowing out a little the upper and anterior surface of the phalanx to a depth of about one-sixth of an inch. In doing this I proposed to remove together with the tumour all its roots of implantation, so as to protect the patient from a return of the affection. The bone offered but a slight resistance; if it had been harder I should have used the gouge and mallet. A simple dressing, the same as for an ingrown toe-nail, terminated the operation.

This operation differs from Dupuytren's in this, that he shaved off the base of the tumour horizontally with the blade of the bistoury, while I used the point, forcing it in first on the inner then on the outer side, holding the tumour, meanwhile, with pronged forceps. The bony substance resisted a little, but by using some force, I easily overcame it.

You will find in the books other modes of treatment. Liston (of London) and Lenoir (of Paris) preferred disarticulation of the outer phalanx, in order the more certainly to prevent a return of the trouble. Dr. Debrou, of Orleans, animated by the same desire, thought it sufficient to amputate in the continuity of the phalanx, forming a dorsal flap out of the sub-ungual dermis, and a plantar one. This skilful surgeon based his operation upon two dissections which had shown him that the origin and implantation were upon the anterior border of the phalanx, and extended so short a distance upon its upper surface that amputation at the point indicated might be made with the certainty of removing all the disease, and preventing its reproduction.

Gentlemen, I do not wish to exaggerate the danger of amputation in contiguity, and still less of that in continuity, but still this danger is certainly greater than that of the ablation to which I give the preference. The slight excavation which I made so as to pass beyond the limits of the disease, and to the usefulness of which I called attention in 1861,[1] appears to me quite sufficient to protect the patient from a relapse. At least in none of the eight persons upon whom I have operated in this way has the growth returned, and even if it should return once, I feel convinced that if the patient had reached the age of 25 or 26 years at the time of the second operation, another return would not take place, the age which predisposes to this kind of production having been passed.

LECTURE III.

NON-SPECIFIC EPIPHYSARY EXOSTOSIS OF YOUTH OR EXOSTOSIS OF DEVELOPMENT.

Description of the disease—Incurability by internal treatment—Operation useless, because the tumour is indolent and without danger, and will cease to grow after adolescence—Surgical intervention reserved for some exceptional cases.

GENTLEMEN: As we finished the visit this morning we were stopped by a young man, 19 years old, whose father came to ask my advice about a tumour situated upon the inferior and internal portion of his son's right knee. The tumour first appeared when the boy was 16 years old, it has grown little by little without causing any pain, but now that it has reached the size of a lady apple the young man and his parents begin to worry about it, and wish to know if it cannot be removed. You saw that the tumour was round, slightly knobbed, and so hard that there was no doubt about its being formed of bone. The skin that covers it is normally soft and movable. Seizing it with one hand, and fixing the leg solidly with the other, I recognized that the tumour was tightly adherent to and confounded with the inner tuberosity of the tibia.

Consequently I did not hesitate to pronounce the diagnosis exostosis, and you heard me add, exostosis of adolescence. By that I wished you to understand that there are developed in adolescents exostoses which are not due to a specific cause, but which are purely local lesions unaccompanied either by pains or marked functional troubles, and which will not disappear under the influence of a general treatment.

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[1] Bulletin de la Soc. de Chirurgie, June 12, 1861.

You often see in the surgical wards, and you will hereafter meet with in practice, patients bearing tertiary syphilitic exostoses. Sometimes they are young people, but more often they are adults, and in any case the diagnosis indicates at once the existence of a general cause, syphilis, under the influence of which the lesion has been produced, and behind this cause the possibility of a disappearance under the influence of an appropriate treatment.

On the other hand, you will often hear me call your attention to bony swellings which I call *hyperostoses.* I shall tell you that these hyperostoses sometimes follow osteitis of infancy or of youth, but in such a case last throughout the patient's life, and become from time to time the seat of fresh inflammatory action, and even of necrosis. I shall further show you that these hyperostoses may form on adults, especially after a fracture.

But in the case of this young man you see there has been no intervention either of the syphilitic cause or of an antecedent osteitis. We have here a very circumscribed, indolent, bony swelling, which is due to no appreciable cause, and which can be explained only by an aberration or excess of bony development at certain points of the skeleton, at the time when the system is working to complete this latter, an aberration comparable to that which causes the formation at the same age of sub-ungual exostosis and naso-pharyngeal polyps. Only, while in this case the production is exclusively bony, you remember that in sub-ungual exostosis it is osteo-fibrous, and in the naso-pharyngeal polyps exclusively fibrous.

I said that you would meet with analogous cases in your practice. You will find them oftener upon the lower than the upper limbs, and in the neighbourhood of the extremities rather than upon the body of the bone. In this connection I accept willingly the opinion uttered by M. Broca[1] before the Société de Chirurgie upon the origin of these exostoses in the border of the epiphysary cartilage, and more often upon the side than in front or behind, and with him I give them the name of epiphysary exostoses. But I should like to be sure that my learned colleague had had the occasion, which I, for my part, have not had, to verify the fact upon the cadaver. On some subjects you find many at a time. In a case presented by M. Marjolin[2] to the Société de Chirurgie, there were a great many of them, and they were symmetrical, that is, they occupied the same place and had the same size on the right and on the left. It is true that this was a child six years old; but although this lesion is generally seen during youth, yet like the other lesions of this age it sometimes occurs in children.

When the father asked me repeatedly what I thought should be done for the tumour, you heard me answer, "Nothing." The exostosis causes no functional trouble, no pain; if there were any chance that we might cause it to disappear by inoffensive external or internal treatment, we would make the attempt, for it is disagreeable for any one, and especially for a young man, to bear a deformity. But we know and we have warned the patient that the tumour will not disappear under the influence of drugs, and that it may even increase a little until the skeleton is completed, that is, until the end of adolescence. Consequently I prescribed only some precautions in the hope of preventing too great growth. I advised him to avoid long walks and fatigue, and to cover the upper portion of the leg with cotton and duck, so as to protect the exostosis from external violence, or at least to diminish its effect.

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[1] Broca, Gazette des Hôpitaux, 1865, p. 295.

[2] Marjolin, Gazette des Hôpitaux, 1864, p. 344.

Gentlemen, observe that we could get a radical cure only by a cutting operation. This operation, which would consist in dissecting back the skin, uncovering the base of the tumour, and removing it with a chain-saw or gouge, would certainly not be difficult of execution. But it would inevitably be followed by suppuration, for the wound would be too large to permit immediate union; the suppuration would undoubtedly attack the bone itself, and the patient would have to run the risk of an acute suppurative osteo-myelitis, the danger of which disease I shall often have to point out to you.

At the beginning of my studies, in 1834, I saw Professor Roux remove by an operation of this kind an epiphysary exostosis of the lower portion of the femur of a strong, handsome young man 18 years old. Suppurative osteo-myelitis of the femur set in, and was complicated by pyæmia, which carried off the patient at the end of twenty days. Roux had performed the operation because he thought the tumour would grow until it caused intolerable pain and annoyance.

To-day surgeons ought to know that—the period of adolescence ended—tumours of this kind remain stationary, and, as a rule, cause no trouble in the functions of the affected part.

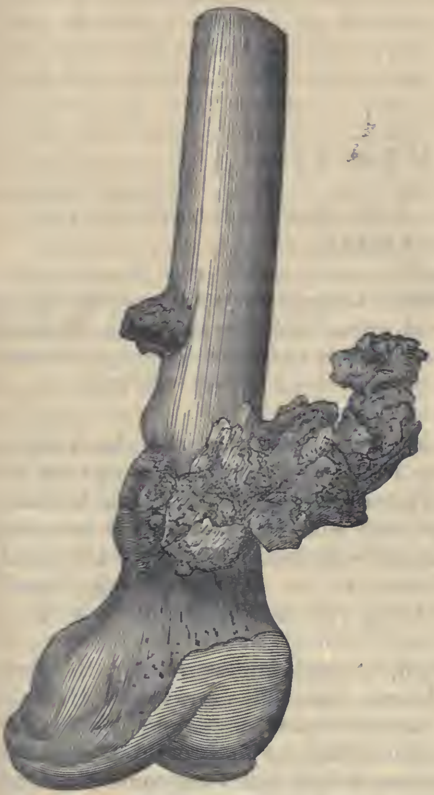
There are, however, exceptions. M. Broca has reported the case of a young man, 20 years old, whose exostosis was complicated by a cyst developed about it. This cyst grew so large that the surgeon thought an operation necessary, and removed both it and the bony tumour successfully. I think that perhaps in such a case puncture of the cyst, followed by an injection of the tincture of iodine, without touching the exostosis, might be sufficient. I should not be willing to remove the latter unless it interfered notably with the action of the muscles.

An English surgeon, M. Coote,[1] was led to operate by special reasons which, in any case where they should present themselves, would be a precise indication for surgical intervention. The patient, 26 years old, had had for many years an exostosis of the transverse process of the seventh cervical vertebra. The tumour, which was only as large as a good-sized nut, projected above the clavicle, pushed the subclavian artery forward, and forced upward and compressed the nerves of the brachial plexus. Hence numbness and coldness of the hand and fingers, and pain along the arm and in the shoulder. Removal of the tumour, which was, of course, difficult in this region, caused the disappearance of all these functional troubles.

[1] Coote, Union Médicale, 1861, tome xii. p. 188.

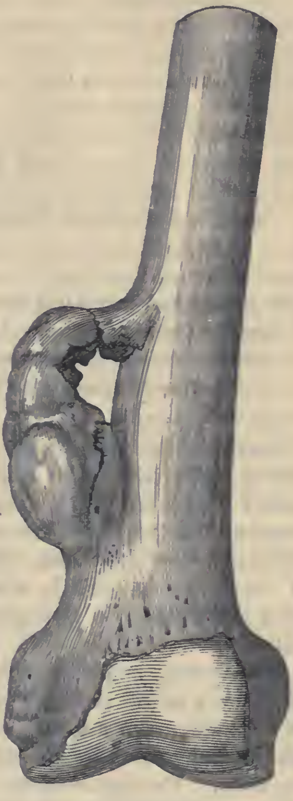
In 1857, at the Hôpital Cochin, I saw a still rarer exception. The patient, 51 years old, had had, since the age of 15 or 16, an exostosis upon the inner portion of the left femur. (Figs. 1 and 2.) It had never given him any trouble, when one day he was knocked down by a wagon, the wheel of which, passing over his thigh, fractured the exostosis. Its anatomical disposition was very unusual. Instead of a single implantation, which is habitual, it had two: the lower one very large, the upper one smaller. It had thus the form of a loop or of a large zygomatic arch.

Fig. 1.



Arched exostosis of femur—broken.

Fig. 2.



Fragments in place.

The weight of the wagon caused a comminuted fracture of this exostosis, detaching it from its insertions, and at the same time a contused wound, which made the fracture compound.

Suppuration was abundant; the patient fell promptly into a dangerous hectic condition; I amputated through the thigh about the thirtieth day, and the patient was carried off by pyæmia.

With the exception then of such cases as these, fix in your minds this fact, that epiphysary or developmental exostoses may remain without causing any inconvenience, that they cease to grow when adolescence ends, and that their removal offers dangers to which it is absolutely contra-indicated to expose the patient when the tumour is indolent and inoffensive.

LECTURE IV.

SUFFOCATING AND REBELLIOUS NASO-PHARYNGEAL FIBROMA OR FIBROUS POLYP.

Hemorrhagic and suffocating form of fibroma—Large implantation upon the base of the skull—Signification of the word polyp—Palliative operations—Nélaton's operation—Cauterization by electrolysis—Nitric acid—Chloride of zinc—Increase —Exophthalmia, hemiplegia, their disappearance at the age of 25 years.

GENTLEMEN: We have just seen, as we completed the visit, a young man, 23 years old, whom I have treated in our wards for nearly two years for a naso-pharyngeal fibrous polyp which had become suffocating and hemorrhagic, and who appears now to be cured of this serious affection. His history is so instructive from all points of view, and especially with reference to the influence of age, that I wish to relate it to you again, and beg you to engrave it upon your minds.

This young man, Joseph Pellard, entered our wards for the first time the 21st of April, 1869. He was then 22 years old. He told us that since the age of 16 or 17 he had noticed a change in his voice, which had grown nasal, and a slight difficulty in breathing through his nose. During several years these functional symptoms troubled him so little that he paid no attention to them and consulted no one.

At about the age of 20 he bled frequently from the nose; but although the nasal tone had increased, and respiration through the nostrils was impossible, he was still able to live without treatment. After some time the epistaxes became more frequent, though not very abundant; each time the respiration became more embarrassed, and deglutition was difficult. The patient was then obliged to consult a physician, who sent him to me for the surgical treatment which he considered necessary.

The day we examined the patient for the first time, we found that he was large, well formed, and did not have the pale look of anæmic subjects, which proved that the quantity of blood lost had not been considerable. What struck us most was the frequency of his respirations, and the snoring sound which accompanied them. Questioned upon this point, the patient said he did not generally feel choked, but he was short of breath when walking, and for that reason could neither walk fast nor run. He added that on two occasions, without apparent cause, he had had short attacks of suffocation. His face was not deformed.

In order to examine the nostrils and nasal fossæ, I placed the patient before a window, introduced successively into each nostril Duplay's bivalve nasal speculum, and saw, at about three-quarters of an inch from the nostril, on each side, a round reddish body. I told the patient to close the mouth and make a forcible expiration, and thus discovered not only that these round bodies were not pushed forward, but also that not a particle of air escaped through the nasal fossæ, and that consequently these latter were entirely obstructed. At the same time, I mentioned that the intra-nasal tumours had neither the flattened form nor the pinkish-gray colour of mucous polyps.

Carrying, then, my investigation into the pharynx, I saw at once that the soft palate was pressed forward. I tried to press it back with my finger but was unable to do so, finding resistance upon the sides as well as in the median line. Then depressing the tongue, I saw in the middle of the pharynx a round reddish body extending nearly half an inch below the edge of the palate, and evidently continuous with the resisting body above it. Finally, passing the right index finger beyond the palate, I felt that this fleshy body occupied all the upper or nasal portion of the pharynx. I could pass the end of my finger between it and the wall on the right side, but not on the left, but it was impossible to get behind, or above, or to move it, because it occupied the whole space, and seemed to be fixed upon the first cervical vertebræ.

By these physical and functional symptoms, I recognized one of those tumours so well studied recently by Professor Nélaton, which we know by the name of naso-pharyngeal polyps.

It was not a mucous polyp, because, in the first place, polyps of that kind do not ordinarily reach such a size, secondly, because it was redder, and above all, because its consistency was firmer. All these points are characteristic of fibrous polyps.

The size of the tumour might have given rise to the idea of its being a cancer, and its resistance to the remedies employed during eighteen months might afterwards have confirmed this idea. But there was no ulceration ; now, cancer of the nasal, buccal, and pharyngeal cavities, hardly reaches this size, and does not last so long without ulcerating. On the other hand, cancer, especially cancer that progresses slowly (this tumour was at least five years old), is very rare at this age.

Finally, M. Nélaton's researches have taught us two things which ought to be utilized in the diagnosis. The first is that naso-pharyngeal fibrous growths are seen especially upon young people, and the second is that they are seen almost exclusively upon boys and not upon girls.

The cases which I have met are entirely confirmative of these two opinions. I have seen naso-pharyngeal fibromas only upon adolescents and upon boys. I have read of some cases where the patients were girls; but I am not sure that the diagnosis was correct.

Apropos of that, gentlemen, let me put you on your guard against the titles given to many facts in books and periodicals published before 1848. Up to that time they had not had occasion to make the distinctions among naso-pharyngeal tumours which we make to-day, and they gave the name of polyp to every growth which projected into the naso pharyngeal cavities, without occupying themselves with the nature of the tissue of which the tumour was composed. We now know that there are found in these regions, fibromas, epitheliomas, and cancers, which resemble one another by many of their physical and functional characters. Now, while the two latter may appear at any age and in both sexes, the first present the two etiological peculiarities which I have just mentioned.

I will not go so far as to affirm that naso-pharyngeal fibrous polyps never appear in girls. I only say that neither M. Nélaton nor I have yet observed a positive example of it.

The age and sex, then, of our patient, favoured the opinion that the tumour was a fibroma; but I used the expression *polyp.* What do we mean by this word, and is it rightly used here?

Clinically, we have long called polyps tumours developed and free in those natural cavities of the body which communicate with the exterior, and most of which are covered by a mucous membrane, tumours of which one of the principal characteristics is that they are attached by a pedicle, that is to say, by a portion which is smaller than the free and prominent portion of the tumour. This word "polyp" has the disadvantage of conveying no anatomo-pathological idea. Modern surgery, however, has retained it for two reasons: first, because the presence of the pedicle indicated by this word leads to operations relatively easy (ligature, excision) and different from those necessitated by the tumours of other regions; second, because the pedicle carries with it the idea of non-malignancy, that is, of not being cancerous. I cannot tell you why it is so, but such is the fact, and I formulate it thus: In the natural cavities cancerous tumours are not pedicular; only non-malignant tumours have a pedicle.

That, however, does not mean that non-malignant tumours always have a pedicle, and in fact, in the case of a young man of whom I am now speaking, I was authorized, for the reasons I have given you, to admit a fibroma; but I was by no means authorized the first day, and you will see I have been less and less so ever since, to admit a pedicle. I could not see one, and with my finger I could feel only a small portion of the tumour free, while the latter was absolutely immovable, and I thought I found a sort of fusion between it and the corresponding portions of the skeleton, the basilar surface of the occipital and sphenoid, and the lower face of the petrous portion of the temporal. If, then, the tumour was pedicellated, it was impossible for me to determine it at first, and I was obliged to reserve that part of the diagnosis until, the tumour having been diminished in some way, I should be able to carry my finger around it and see if the implantation was notably smaller than the free portion. I will tell you now that my later explorations demonstrated the absence of a pedicle and the existence of a large base of implantation. Consequently it was not a polyp, in the rigorous acceptation of the word.

If you have heard me still use the expression, it has been because, on the one hand, it had this other signification, that in my opinion the growth was fibrous and consequently non-malignant, and, on the other hand, I was justified by usage. In the works which have been published in France upon this subject under the inspiration of Nélaton, especially in the theses of Drs. Perier and D'Ornellas, as well as in the discussions upon the subject, the word polyp has been habitually used to indicate every kind of naso-pharyngeal fibrous growth of adolescence.

Remember, nevertheless, to make this distinction, that among the tumours of this kind, some are distinctly pediculated, others are completely sessile, and I will show you hereafter the importance of this distinction for the treatment.

The anatomical diagnosis being thus established, naso-pharyngeal fibroma broadly implanted upon the upper wall of the pharynx, and projecting at the same time into the two nasal fossæ and into the inferior and middle regions of the pharynx, I completed it, by adding that the tumour interfered enough with respiration by blocking up the air passages to deserve the name of suffocating fibroma or polyp.

In this last quality lay the necessity for surgical intervention. But what was to be done?

I passed in review all the simple and compound operations which have been recommended for cases of this kind. I saw at once that a simple operation was impossible on account of the size of the tumour, and that it was necessary to select one of the complex and multiple ones which I was the first to distinguish as *preliminary*, *fundamental*, and *complementary*.[1]

The end proposed in these operations has been to separate the tumour completely at the point of implantation, in the hope of thereby removing it entirely and protecting the patient from relapse, which, according to the experience of Nélaton, confirmed afterwards by that of all surgeons, is very common in this disease, and has been attributed to the insufficiency of the removal. The reasoning, apparently correct, was this: Let the surgical intervention be such as will entirely remove or destroy all the roots of the tumour, and its reproduction will not take place. Some facts agreed with the theory, but others, and they were quite numerous, disagreed. Reproductions occurred in spite of all the care which had been taken to shave off the surface of implantation, to scrape it and to destroy all that could be considered as forming part of the tumour. To be convinced of this you have only to read the tables prepared by M. Michaux de Louvain in 1867.[2] He has collected twenty-seven cases of total resection of the superior maxilla which resulted in eighteen complete successes, one incomplete, two *relapses*, and three deaths; and twenty-nine cases of removal with resection of the palatal arch, which gave twelve successes, five incomplete results, three unknown, four *relapses*, and five deaths. I am not at all sure that the successes given as complete remained such indefinitely; some of the patients may have had relapses after the surgeon had lost sight of them. But it is nevertheless true, according to the known results, that a relapse is possible after serious preliminary operations which permit the entire removal of the tumour.

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[1] Goselin, Traitement chirurgical des Polypes des fosses nasales et du pharynx. Thèse de Concours pour une Chaire de Médecine opératoire Paris, 1850.

[2] Michaux (de Louvain) Quelques Mots encore sur les Polypes fibreux naso-pharyngiens volumineux. Bulletin de l'Académie de Belgique, 3d série, tome i. in 4to.

I had then to determine whether, in order to save my patient from the death by suffocation which threatened him, I ought to perform a serious preliminary operation which would give me free access to the surface of implantation, so that I might attack the latter with cutting instruments, and afterwards, if neccessary, cauterize it. I had to choose between incision of the soft, followed by resection of the hard palate (Nélaton's method), and resection of the superior maxillary bone, as practised by Flaubert of Rouen, Robert, and Michaux.

I was but little tempted by the first, because, the surface of implantation being probably very large, I should have been unable to get an opening large enough to allow me to operate upon it properly. This preliminary operation, which has the great advantage of sparing the face and leaving the alveolar-dental arch intact, appears to me to be sufficient and preferable when the implantation is small, when it is limited, for example, to the basilar surface of the occipital bone; but it is certainly insufficient when the implantation is very large, as was the case here. With reference to the certainty of execution, the maxillary route was undoubtedly preferable. But besides the inevitable disfigurement which it causes, it is more serious and is more likely than the former to lead to purulent infection. I know that the statistics published by M. Michaux seem to prove the contrary, but remember, and this objection applies to all statistics based on observations gathered from journals, that all the cases, and especially the unfortunate ones, have not been published, and that consequently statistics of this kind, in spite of their apparent exactitude, do not definitely settle the question of the comparative danger of different operations. For my part, I am convinced by the results of resection of the upper maxilla for other affections than polyps, that this operation is more dangerous than resection of the palate. Moreover, in the present case it was not only the preliminary operation, but also the fundamental one, which was dangerous. This great tumour was very vascular, for it had frequently occasioned epistaxis, and there was reason to fear that if I attacked it with the bistoury, scissors, or hooks, the patient would die upon the table from hemorrhage.

Reflecting upon those dangers to which a complicated operation exposed the patient, I thought of the influence of age, and asked myself whether the patient, being twenty-two years old, was not near that period of life in which tumours of this kind have no tendency to be produced, and consequently none to reappear. I remembered that my learned friend and colleague, M. Legouest, had uttered formally, before the Société de Chirurgie in 1865, the opinion that naso-pharyngeal polyps might be treated by a simple and palliative operation until the period of their habitual formation had passed.

Furthermore, having, as I have just told you, no very precise notions as to the extent of the implantation, and not being willing to engage in a perilous operation without being better informed, I decided to confine myself at first to a palliative operation which should have a double object, that of relieving the patient from the danger of suffocation, and giving me more definite ideas as to the connections of the tumour by which my future action would be determined.

Having decided upon this plan, I proposed soon to put it into operation, when, on reaching the hospital on the morning of the 27th of April, I learned that the patient had had during the night a violent fit of suffocation which had nearly proved fatal. There was then no more time to be lost, and I performed the same day a palliative operation intended to prevent asphyxia.

The patient having been seated upon a chair in front of a window, I divided, as an indispensable preliminary operation, the soft palate along the median line, and resected a portion of the hard palate (Nélaton's method), and by the way thus opened I introduced a strong pair of polypus forceps, with which I seized the tumour and tried to draw it towards me, combining the movement of traction with that of rotation. After using considerable force I brought away a very small piece of the tumour; I tried again two or three times, without any success, and then taking a pair of pronged forceps I fixed them firmly in the morbid mass and cut beyond them with strong curved scissors; this time I brought away a piece as large as a walnut. I then repeated the manœuvre after giving the patient time to rest and spit.

The operation had not been very long, but the young man had lost considerable blood and felt weak, so I decided not to try to remove any more, and occupied myself with checking the flow of blood. For that purpose I touched the bleeding portions of the tumour several times with a brush dipped in a mixture of one part of perchloride of iron at 30° and three parts of water, and made the patient gargle his throat with a still weaker solution of the same preparation. The flow soon stopped, and the patient was able to walk back to his bed. The following days respiration was much freer, suffocation no longer threatened, and no accident consecutive to the operation endangered the life of the patient. In a word, my incomplete and palliative operation had had none of the unfortunate consequences which might have attended an attempt at a radical cure. Still we were far from a cure, and had even to expect an increase in the portion which had not been removed.

I should mention that the portion removed was examined, and found to consist of a fibrous framework and a rather large number of bloodvessels.

Examining the patient daily, I discovered between the twentieth and thirtieth days that the tumour increased a little above the soft palate; without waiting for it to become sufficiently large to again interfere with respiration, I subjected the patient during the next two months to ten operations with the electrolytic apparatus. You remember that the arrangement of the currents in this apparatus is such that they produce a sort of chemical destruction and elimination of the tissues traversed by them, which, however, is not a real gangrene.

Those of you who assisted at those operations remember that they lasted ten or fifteen minutes and were quite painful, also that the eschars produced were small, and that the tumour increased again as soon as the elimination was finished. In short, after two months nothing had been gained or lost; the fibroma was no longer suffocating, and in no way did it compromise life, but it was still there, and I easily recognized every day, by passing my finger through the division of the soft palate, that the tumour was sessile and occupied a large surface, that it did not belong to the category of polyps, properly so called.

After two or three more weeks passed in observation I recognized that the tumour continued to increase, without, however, becoming large enough to again cause the suffocation which had so incommoded and threatened the patient at the time of his admission into the hospital. Furthermore, there was no flow of blood except on the days when the tumour was touched either for exploration or for electrization, and the general health remained good.

Anxious to keep the disease in this condition, that is, within the limits compatible with health, continuing to fear the consequences of a great curative operation, and hoping that one day or another the influence of age would make itself felt, I gave up electrolysis, which caused a good deal of pain and yielded only insufficient results, and I decided that thereafter the tumour should be attacked and destroyed as far as possible by means of caustics applied through the opening in the palate or through the nostrils. At first I used monohydrated nitric acid, carried through the division of the palate with all the precautions necessary to prevent its falling into the pharynx and œsophagus. This mode of cauterization had the advantage of causing but little pain and no loss of blood; but it had the disadvantage of destroying only the surface and not at all the parenchyma. For this reason I ultimately had recourse to the application of points and grains of chloride of zinc, giving to the caustic, which was well dried and composed of one-third chloride of zinc and two-thirds flour, the form and dimensions suitable to the passage through which I had to apply it. Three different times I attacked the nasal prolongations which had grown nearly down to the nostrils, and for that I used grains having the form and size of oats. For the pharyngeal portion, on the other hand, I used triangular points having a length of from one-half to three-quarters of an inch, and a breadth at the base of one-third of an inch. These points were applied by means of long polypus forceps, and I was careful to choose those whose points were the hardest. Notwithstanding the hardness of the tumour, I never had to make a preliminary incision with the point of the bistoury. I applied every time two or three of these points. The operation had the disadvantage of causing the blood to flow for from fifteen to thirty minutes. But as the patient ate well, and repaired rapidly, and as in fact the amount of blood lost each time was hardly more than three ounces, the disadvantage was not too great. I noticed only that the tumour became more and more vascular as it grew older.

Such was the condition of affairs during August and September; caustics had been applied ten different times, and had produced eschars of greater or less size. In short, the tumour was smaller than at first, but there was still the same extent of implantation and the same tendency to increase as soon as we ceased to employ the means of partial destruction. Wearied with his long stay in the hospital, and not considering himself ill enough to remain, the young man begged to be allowed to depart, promising to return if he did not get better.

He left us on the 18th of October, 1869, having obtained from his five months of treatment this important result, that our first palliative operations had saved his life, but with the chagrin of knowing that he was not cured, a chagrin that he felt very keenly, notwithstanding the hope we gave him of a cure at the end of adolescence.

When he returned two months later, the 30th of December, 1869, Pellard informed us that he had had no fresh hemorrhages, and that his health continued good, but that for some time he had felt that his respiration was again becoming affected. Furthermore, although he felt well, he had grown thin, and I pointed out to you a beginning of exophthalmia on the left side; I attributed it to this, that the left nasal prolongation had destroyed the outer wall of the nasal fossa and extended into the orbit. I again attacked the tumour twice with caustic points, which caused free bleeding each time. I was still unwilling to resect the superior maxilla on account of the dangers I foresaw both from the operation itself and from the necessity of severing such extensive connections of a very vascular tumour.

Meanwhile, on making my visit one morning in February, 1870, the patient told me that, without having lost consciousness, he had felt when he awoke that morning numbness in his right arm and leg, and we discovered then and on the following days that the upper and lower limbs on the right side were partially, but evidently paralyzed; and as the exophthalmia continued and even increased, I was forced to think that the cribriform plate at the upper wall of the left nasal fossa had been affected similarly to the outer wall, that is, had undergone a destruction and perforation which permitted the tumour to extend towards the cavity of the skull and compress the brain.

However that may be, I at once abandoned all hope, and thought the young man would be soon carried off by meningitis or some other cerebral affection. I regretted that I had not removed and cauterized the tumour at the beginning, after preliminary resection of the superior maxilla, for I now considered such an operation impossible, since there was reason to fear that the removal of the upper portion of the tumour would open a large communication between the nasal fossa and the cavity of the cranium; I therefore allowed the patient to quit the hospital again the 27th of March, 1870.

What was my astonishment to see him return the 16th February, 1871. I had heard nothing of him for a year, and supposed him to be dead. On the contrary, he came to tell me that since his departure his health had steadily improved in spite of his participation in the fatigues and privations of the siege of Paris. The weakness of the right side had disappeared little by little; no cerebral symptom had occurred; the prominence of the eye existed no longer, and yet no new treatment had been undertaken. The only incident was that in September, 1870, more than five months after he had left La Charité, an abundant epistaxis occurred and obliged him to enter the Hôtel Dieu, in the wards of M. Laugier, who undertook no surgical treatment, but contented himself with prescribing some gargles.

By making him breathe through his nostrils, I ascertained that the air passed freely. Examining him in a good light, I no longer saw in the nasal fossa the round red bodies which were formerly there. Opening his mouth, I saw the median division of the soft palate which I had made, but no tumour above it; I could pass my finger above the palate throughout the whole upper portion of the pharynx exactly as in those who have no polyp. The only thing of which the patient complained was the nasal tone of his voice resulting from the defective condition of the palate. I proposed staphylorraphy at once, to which he did not agree, but he promised to return later and have it performed.

To recapitulate, gentlemen, we have a young man twenty-two years old, who has just escaped being killed by a suffocating naso-pharyngeal fibroma. A palliative treatment prevented death, and afterward kept the tumour from again becoming suffocating. At the age of twenty-four and a half years, and without any further surgical treatment, the rest of the tumour disappears spontaneously, being absorbed, not eliminated. Repair of the orbital and naso-cranial walls takes place by means which we do not exactly understand. The symptoms of compression of the eye and brain disappear, and, in short, the patient appears to be cured.[1]

This fact is certainly favourable to the opinion of M. Legouest, but we must ask ourselves if, perchance, it is not exceptional. I have looked for the records of similar cases, but have found none.

M. Legouest said that in the case of the young man eighteen years old, upon whom he operated in 1865, he intended to make only a palliative operation by tearing out the tumour through a nasal opening previously established by making an incision in the genio-nasal fold, dividing the naso-maxillary suture with a Liston's forceps, turning outwards the inner wall of the maxillary sinus, and leaving this abnormal route open so that he might again attack the polyp after the reproduction which he expected, and which indeed took place a few months later. But this time the tumour was attacked by gangrenous inflammation and fell. M. Legouest did not know if the polyp had grown a third time, or if a complementary operation had been performed to close the artificial nasal opening. But if, thus far, surgeons have not been guided, like M. Legouest and myself, in their therapeutical decisions, by the thought of the influence of age, some facts favourable to our opinion have appeared. Thus, in the discussion which took place in the Société de Chirurgie in 1866 upon this subject, Velpeau reported two cases in which the patients, operated upon by the simple method of extraction, one twenty years, the other nine years before, had remained perfectly well though retaining upon the basilar process an abnormal prominence which grew no larger. Velpeau indicated the analogy between the behaviour of naso-pharyngeal polyps and that of uterine fibromas at the period of the menopause. We know that often after the cessation of the courses these fibromas or myomas diminish, and even disappear. It may well be the same for the fibromas of the basilar process. On the other hand, it must be admitted that after a certain age naso-pharyngeal fibrous polyps are no longer produced, since to my knowledge no observation has been published of an adult having a polyp of this kind after it had been operated upon during youth. All the published relapses occurred in young people. After the age of twenty-five years we hear nothing of them. The reason is that those upon whom the operation succeeded were permanently cured, or that those in whom a reproduction took place got well spontaneously, like my patient, without undergoing another operation.

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[1] Since this article was put in type, this patient has written to me that he is again suffering, and has from time to time fresh hemorrhages from the nose. He is far from Paris, and I have not been able to see him. If it is a relapse, the details I have given would none the less justify my opinions upon the influence of age, and authorize me to believe that a new treatment, now that the patient is twenty-five years old, would yield a definitive success.

Further observation will decide the question, but for the moment I feel justified in repeating to you what I said not long ago about ingrown toe-nail: do not worry too much about relapses; this is a disease of youth; help your patient to become an adult, and, if his tumour does not disappear spontaneously, the chances are great that you will then be able to cure him by a simple operation without relapse.

We must now seek to answer the question which you hear me ask for all the diseases of youth. What is the cause, and how explain the influence of this age upon the development of naso-pharyngeal fibromas?

I shall not spend any time upon this point, because it is impossible for me to give the problem a satisfactory solution. I might indeed tell you that these tumours have their origin in the submucous tissue which is at the same time the peritoneum of the bones of the base of the skull which limit the pharynx above, and that at the period when the development of the skeleton ends, an aberration and an exuberance of nutrition may take place in this periosteal envelope. But I know how hypothetical this explanation is, and prefer to spend no time upon it, but to confine myself to the indication of the fact, as to which there is not the slightest doubt.

I shall be less troubled to draw from what has preceded this therapeutical conclusion, that preliminary operations, intended to give free access to the implantation of these tumours, should be performed only exceptionally. An explanation of this is necessary, for the plan adopted should necessarily vary according to the age of the patient, the size of the tumour, and, above all, the extent of implantation.

1. Suppose first that the patient is still far from the age at which presumably, adolescence being ended, there will be no more tendency to the reproduction of the fibroma; suppose that he is from thirteen to eighteen years old, and suppose at the same time that the tumour is not very large, not larger, for example, than half an egg, and that examinations with the finger and eye have shown that a pedicle exists and is not very large, that the prolongations into the nasal fossæ do not obstruct these cavites entirely, and that there are no appreciable ones on the side of the pterygo-maxillary fossa or of the orbit.

In such a case the surgeon ought to be guided by this thought, that the disease left to itself will increase, and ultimately send out one or another of those prolongations which destroy the bones of the face, and become hemorrhagic, if not so already, and even suffocating. He should therefore consider intervention necessary. But in my opinion, he ought to reject every preliminary operation, and have recourse to one of the simple ones, especially extraction or ligation; and, as extraction through the nostrils is almost impossible, he should attempt it through the mouth, making use of good curved forceps and helping it with a finger. This attempt is rational for two reasons: first, because the pedicle of a fibrous polyp may be small enough to allow of its being torn off; and, second, because certain single naso-pharyngeal mucous polyps may, like the example I published,[1] develop in young people, the diagnosis between them and fibrous polyps is almost impossible before removal, and they are very easily torn out.

If the attempt to tear out has failed, recourse must be had to the ligature. Passing through one of the nostrils, the patient being seated before a window, a Belloc sound, the spring of which is projected into the mouth, and fastening to the end of this spring the two ends of a very strong thread of triple silk, or of that kind known as twisted silk; the two ends are brought through the nose by withdrawing the sound, and the loop is carried behind the polyp. This is the difficult part of the operation; if the tumour is not very large it may be done with the fingers; but do not forget that, to render it easier for the patient, it is well to prescribe fifty or sixty grains of the bromide of potassium daily during the four or five preceding days. You know that in many people this drug causes a notable diminution of the sensibility of the palate and pharynx.

If the fingers are not sufficient it will be necessary to use a porte-ligature. The one which I prefer is that of Felix Hatin. (Fig. 3.) But if you do not possess one, or if you do not succeed with it, you may still seize the polyp on each side with pronged curved forceps, and while they are held in place by an assistant slide the loop along them.

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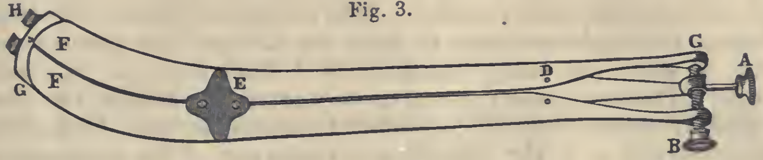
[1] Gosselin, Gazette des Hôpitaux, 1866, p. 453.

Fig. 3.



After the loop has been put in place, it is well to transfix the tumour above the soft palate with a curved needle carrying a long thread by which the polyp is drawn forward and kept from being swallowed when detached.

The operation is completed by passing the two ends through a Graefe's ligator and gradually tightening the loop.

Here we have to choose between slow section requiring several days, and extemporaneous section in an hour or two. I should now give the preference to the latter, and I should make the intervals between the successive tightenings longer or shorter as the bleeding was more or less abundant; if it was enough to make me expect hemorrhage after the section was completed, I should increase the constriction only once or twice each day—that is, I should make slow, instead of extemporaneous ligature.

Gentlemen, in having recourse to extraction or to ligation without preliminary operation, you offer, it is true, only a palliative remedy. But you give your patient two advantages: you do nothing to endanger his life, you do not mutilate his face or his mouth. Do not forget that division of the soft, and resection of the hard palate, exposes your youthful patient to the chance of having for the rest of his life a nasal tone, and all the discomforts of a permanent communication between the cavities of the mouth and nose. Do not think that you will always be able to remedy this by staphylorraphy, aided, if necessary, by staphyloplasty, for these operations do not always succeed; often they succeed only imperfectly and leave an opening more or less small, the discomforts of which are about as great as those of a large one, and can be remedied only by an obturator. And think for a moment of the discomforts of always wearing an obturator!

On the other hand, resection of the superior maxilla condemns the patient, if he survives, to the deformity of the face, which results from the scars and the loss of teeth. Modern prothesis has made great progress, I know; but, like the obturator, would not artificial teeth be a grievous burden for the long years that follow adolescence?

I much prefer the palliative operations of which I have spoken.

There may be a relapse. Very well! Begin again as often as may be necessary, only advise the patient not to delay too long, not to let the fibroma grow too large. Repeat, as often as may be necessary, those operations which compromise neither the life nor the appearance of the face and mouth, and when your patient reaches the age of twenty-three, twenty-four, or twenty-five years, perhaps even more, reproduction will cease, and you will have rendered him the great service of saving his life without mutilation.

2. But we must now suppose another case, which unfortunately will still present itself too often. The subject, as before, is between thirteen and eighteen years of age; the fibroma has become very large, it sends out many branches, or is suffocating, or is hemorrhagic. Tearing it away can give only imperfect results, and those of short duration; ligation is rendered impossible both by the complete obstruction of the nostrils and the extent of the implantation. I should certainly make one or two atttemps to tear it away, but if they did not succeed we should have no right to hope that, under the supposed unfortunate conditions, life could be preserved until the end of adolescence.

It would then be proper to perform one of the combined operations which we long supposed to be radical, and to give the preference to resection of the superior maxilla as the preliminary operation.

If, as is always to be feared, reproduction should take place, it might be combated successfully until the end of adolescence by partial extractions and cauterizations, as in the case of my patient, practising if necessary a new preliminary operation, division of the soft palate.

You see that here the ideas which we have as to the influence of youth lead us to not despair, and to continue to struggle against the chances of death. But the contest is no longer possible without mutilation; we must accept it, since we can do no better. The important thing is not to inflict these mutilations upon the patients when they can be avoided, and they can be avoided if we remember that simple operations, at first palliative, may by the influence of age become curative.

3. I have now a last supposition to make. The subject is more than eighteen years old, and is nearer the end of adolescence. His constitution is more vigorous, and he is better able to resist the injuries which the polyp may occasion. Moreover he has not to remain exposed so many years to this injurious influence. In this case we should again content ouselves with simple operations, or with palliative cauterization after incision of the soft palate, to which we might add resection of the hard palate as advised by Nélaton. Resection of the maxilla appears to me to be still more exceptionally indicated at this age, and should only be performed if the surgeon, after having long studied his patient, has become convinced that palliative operations will not suffice to keep him alive until the end of adolescence, and if, after the patient has passed this age, when for example he is more than twenty-six years old, the tumour does not diminish by absorption or by spontaneous gangrene.

I do not possess enough facts to be able to tell you what proportion of fibromas disappear spontaneously after the subject has become adult. I certainly believe there will always be found patients in whom this disappearance will not take place without surgical aid. If this intervention is inevitable it is important that it should be deferred until that period of life in which we are almost sure its reproduction will not take place.

LECTURE V.

TWO CASES OF SUBACUTE NON-SUPPURATING EPIPHYSARY OSTEITIS.

I. Fall upon the knee—Formation of a painful swelling over the anterior tuberosity of the tibia—Absence of fever—Reasons for thinking that the osteitis will not suppurate, and will terminate in a slight hypertrophy after a simple treatment—II. Fall upon the great trochanter—Analogous symptoms—Non-suppurating and hypertrophic osteitis of youth.

Gentlemen: We have at present, in the wards, two young men affected by the same disease in different regions. One of them is cured and will soon leave us, the other entered two days ago, and will doubtless remain for some time with us.

I. The first is seventeen years old and well formed. He told us when he entered the hospital a fortnight ago, that he had fallen upon the right knee while running, and that since that time he had not ceased to feel a pain which was at first slight enough to allow him to walk and work as usual, but which increased little by little, and was accompanied by a swelling sufficient to oblige him to stop.

You remember that when we saw him for the first time he was without fever, and had at the anterior superior portion of the right tibia, immediately over the anterior tuberosity of this bone, and evidently continuous with it, a hard rounded prominence, slightly painful when he walked, and very painful when even moderate pressure was made upon it with one or two fingers. There was no redness of the skin, no subcutaneous thickening. The temperature of the region seemed a little higher than that of the opposite side. It was evident from its situation that the trouble occupied the anterior tuberosity of the tibia, and that this tuberosity was one-quarter, perhaps one-third, larger than that of the opposite side. Being carefully questioned upon this point, the patient assured us explicitly that his two knees were exactly alike before this last accident, and that the difference in size between the two anterior tuberosities had existed for only a week.

I examined the articulation and found in it neither effusion nor thickening of the synovial, and, as none of the symptoms indicated a phlegmon, and as the age of the patient, the recent appearance of the tumour, and its limited extent dismissed the idea of its being an osteosarcoma, I admitted the existence of an osteitis developed almost exclusively upon the anterior tuberosity of the tibia.

As the pain was moderate, and as the inflammation was not propagated to the connective tissue around the bone, and as there was no fever, I did not mean by this one of those acute suppurating osteites which sometimes appear upon the extremities of the long bones while they are still epiphysary, that is, not united.

Neither did I say that this was an epiphysary exostosis of youth. Its rounded form and hardness certainly recalled exostosis, but its situation dismissed that idea, for exostosis is a bony growth entirely new and generally indolent. This was indeed a bony prominence, but it was not of new formation; it was simply a normal apophysis slightly increased in size.

Dismissing then acute osteitis, osteo-sarcoma, and exostosis, I had to admit a slow plastic osteitis, one that was subacute rather than chronic.

Seeking next the etiological diagnosis, I found none of the general causes which contribute to the development of diseases of the bones. No anterior or hereditary syphilis, no scrofula, no sign of rheumatism. I could find then no other cause than the contusion mentioned by the patient, and as this contusion had been slight, and as, furthermore, I had several times seen a similar swelling develop at the same point upon young people without the intervention of any traumatic cause, I concluded that behind this occasional cause there existed a predisposing one, the age of the patient, and his aptitude to take on, in the neighbourhood of the epiphyses at the time when the nutrition of the bones was working actively to complete ossification, an exaggeration of this movement which thus became an osteitis.

In speaking to you about the prognosis, when the patient was admitted, I said that what preoccupied me most in osteitis was the possibility of its going on to suppuration, and then to purulent infection or caries and necrosis. But I added that in the present case we had but little reason to fear these terminations. I did not expect putrid osteo-myelitis, because the inflammation was not an acute febrile one, and because subacute osteites are rarely followed by these putrid changes which are the sources of poisoning, and of which I shall often have occasion to speak to you.

Nor did I much fear a chronic suppuration which might leave behind it caries or necrosis, or both; for the patient was not lymphatic, and his constitution was not of the kind which predisposes to suppuration of the bones. Furthermore, I had seen several osteites of this kind occupying the anterior tuberosity of the tibia in adolescents, and none of them ended by suppurating.

I therefore told you that, very probably, after a week of rest and care all danger would have disappeared.

All things have gone on as we expected. The treatment consisted simply of poultices and rest in bed. For several days the young man has had no spontaneous pain and suffers very little pressure; I may consider him cured. Still the anterior tuberosity is enlarged, and I think it will remain so. For, indeed, as I shall often have occasion to show you, it is very common to see the hypertrophy which we call hyperostosis follow osteitis, whatever may have been its course, that is to say, whether the termination has or has not been by suppuration, and whether the inflammation of the bone was spontaneous or traumatic. You will scarcely see any disappear without leaving hyperostosis, except the superficial swellings which have chiefly occupied the periosteum, as is the case in syphilitic or rheumatic osteo-periostitis. But in the cases in which the osteitis, whatever may have been its origin, has been interstitial, that is, has occupied the compact and cancellous tissues to a certain depth, and in which the phlegmasia has been accompanied by an increase in size, you may expect to see the hyperostosis persist, and to preserve a tendency towards suppuration when the original osteitis has been suppurative, but, on the other hand, not to have this tendency when the primitive osteitis has not terminated in suppuration. Consequently in the case of this patient, although I see the hyperostosis of the anterior tuberosity of the tibia persist, and though I know that for a certain time and until the completion of ossification he will be exposed to renewals of this pain, especially if there should be another contusion, I do not think he is threatened with suppuration of the bone. If he was going to have it, he would have had it this time.

II. The other patient, who has been here two days, is a young man seventeen years old, who tells us that three months ago he fell upon his left hip, and that since that time, without having been entirely laid up, he has had constant dull pains in the region of the trochanter. These pains have only recently increased, walking finally became so difficult that the patient was obliged to use a cane and enter the hospital.

When I examined him I asked him to indicate the precise seat of his trouble; he placed his hand upon the upper and outer portion of his thigh over the great trochanter, and told us that the pain often extended to the knee. There is almost no pain while he is at rest, it appears especially while he is walking or standing. I pressed with my hand upon all the outer portion of the thigh, and you saw that this pressure caused pain only over the surface of the great trochanter. There we find an ill-defined swelling which at first did not appear very marked, but which is easily recognized when you compare the two trochanteric regions, making the patient lie first upon one side, then upon the other. Trying to discover with the hand the exact position of the swelling, you saw that it was not in the subcutaneous cellular tissue, and was not due to an effusion into one of the two synovial bursæ of the region, for there was no fluctuation. In short, it seemed certain that the part which was swollen and painful on pressure was the great trochanter itself. There is no fever, and the general condition is good.

With what affection have we to deal? The pain, which has already lasted a long time, the lameness which followed it, the diffuse swelling of the upper portion of the thigh, all give at first the idea of a coxalgia. But, the patient lying squarely upon his back, I told him to lift his heel from the bed, to raise his foot well without bending the knee. He made the movement easily, and while he made it I felt with one of my hands placed upon the crest of the ilium that this bone did not budge. If it had been coxalgia the elevation of the heel would have been slower and more difficult, and would have been accompanied by a movement forward of the ilium, a movement due to the fact that, since in this disease the articular surfaces are rendered immovable by muscular contraction, the movements no longer take place in the articulation of the hip, but in those of the pelvis with the spinal column, and in those of the lumbar vertebræ. Then taking hold of the ankle and flexing the leg upon the thigh, and the thigh upon the trunk, I felt that I communicated these movements easily and without experiencing the resistance which is met with in coxalgia, because then the head of the femur and the cotyloid cavity are no longer movable upon one another. Then comparing the height of the spines of the ilium I found that the one on the affected side was not lowered as it would have been in case of coxalgia, and finally, carrying my hand to the lumbar region, I did not find there the bend which is usually found in this latter disease. The result of my examination then authorized me to declare that the affection was not a coxo-femoral arthritis, and before reaching this decision I had made the examination with all the more care because the patient had been sent to me by a physician with a note indicating that he feared the beginning of a coxalgia.

On the other hand, the existence of pains radiating along the thigh might have given rise to the idea of a sciatica. But you saw that these pains were on the outer side, while in sciatica they are especially in the posterior portion of the thigh; that pressure caused them in a region (that of the great trochanter) where they are not found in sciatica, and that finally they were developed while walking, and were not felt when the patient was at rest. Now the principal characteristic of the pains of sciatica is that, although they are sometimes exaggerated during a walk, they appear spontaneously during rest, and even during rest in bed. Consequently there was no reason here to believe in the existence of a sciatica.

You will sometimes hear me speak of a disease, difficult of diagnosis, which occupies the sacro-iliac symphysis, and bears the name of *sacro-coxalgia.* I had also to throw out this disease, because of the localization of the pain in the trochanteric region, and its being awakened by pressure upon this region.

Further, there was no symptom of hygroma, and in addition I knew there was a swelling over the great trochanter.

I recalled the fact that Velpeau had indicated in his lectures osteitis limited to this prominence, and I remembered having met adolescents who had presented symptoms analogous to these.

I thought, then, that we had to deal here with a subacute osteitis of traumatic origin, an osteitis developed, like that of the anterior tuberosity of the tibia of which I have just spoken, upon or in the neighbourhood of an epiphysis. For you know that the great trochanter develops from a special complementary point of ossification, and that it remains until the age of from 20 to 25 years separated from the rest of the bone by a cartilaginous line. There has occurred, then, in my opinion, in this great trochanter, that which occurred in the anterior tuberosity of the other patient. It has been bruised at a period when its nutrition was excited by the needs of ossification, and this contusion has been followed by a phlegmasia which began, perhaps, in the epiphysary cartilage, perhaps in the bone itself. For we cannot determine the starting-point by clinical evidence, the only evidence which we have at our disposal.

I do not claim that a similar contusion would never be followed by trochanteritis in an adult; I only say that that is much more rare, and that the affection is seen chiefly in adolescents and in those regions where are found the epiphyses; that is, bony extremities still separated from the rest of the bone by a cartilaginous line.

I now ask myself, gentlemen, what is to be the result of this trochanteric osteitis or subacute trochanteritis. Certainly we may hope that it will behave like the tibial osteitis of which I have spoken; that is to say, that after a rest of a few weeks it will terminate without suppurating, and will leave behind it a slight hyperostosis. But I must say that I fear suppuration more in this than in the preceding case. For the osteitis has already lasted three months, and has steadily grown worse since the beginning. The patient is thinner and paler. Without being distinctly scrofulous, he nevertheless shows us the attributes of the lymphatic temperament, among them a certain aptitude for suppuration. I do not expect the ultimate development of one of those acute and putrid suppurating osteites which may be followed by purulent infection. It is rare for osteitis to take on this acute form in this age, when in the beginning and for a certain length of time it has been subacute.

I shall not fail to show you examples of acute epiphysary osteitis in adolescents, and to point out that they were such in the beginning, and were not preceded by a slow, dull inflammation.

Our present patient is threatened rather by that variety of slow suppuration which leads to caries and necrosis.

He would then find himself in the position of a young man whom I showed you last year, who bore two fistulæ in the trochanteric region. The probe passed through each of them to the bare and roughened surface of the great trochanter, and announced the existence of that variety of suppurating osteitis which ought to end in the elimination of one or more sequestra, and which we call necrosis. I did not feel the probe penetrate deeply enough, breaking its way through the bony lamellæ, to admit the existence of interstitial suppurating osteitis of the cancellous tissue, known generally as caries. But it is probable that this form may also occur in certain subjects after subacute trochanteritis. I cannot give any example; for, since diseases of this kind are not very common, I have not treated a sufficient number of cases to have seen all the forms.

The important thing for our patient is that this osteitis is not so necessarily destined to suppuration as it would be perhaps in childhood, and even during adult life (in case, of course, tertiary syphilis is not involved), and that by reason of his age we may avoid this mode of termination.

What have we to do to obtain that end?

Of course we shall keep him in bed and not allow him to get up under any pretext.

Furthermore, I shall apply compression by means of a layer of cotton batting, kept in place by a figure-of-eight bandage, the loops of which will pass alternately about the upper half of the thigh and the pelvis. This is the bandage which you know by the name of

Spica, but its femoral portion will extend a little lower upon the thigh than in the ordinary spica. I shall renew this dressing every third or fourth day.

At the same time I shall give the patient three or four tablespoonfuls of cod-liver oil daily, and prescribe five ounces of vin de quinquina to be taken before breakfast, and the same quantity before the evening meal, and I shall nourish him as well as possible.

I should like also to protect him from the exhaustion of masturbation; for patients of delicate constitution, in whom we have reason to fear suppuration of the bones, find in excesses of this kind an increase of their debility and its consequences. In private practice I advise the parents not to leave the young man alone, to distract his attention and occupy him as much as possible; in the hospital this care is impossible, but I shall give all the advice necessary.

We shall continue this treatment for a month, and then stop the use of the bandage and allow the patient to get up for a short time each day. If I find that he does not suffer I shall make him walk a little more every day, and if he still does not suffer I shall consider him cured.

If, on the other hand, the attempt shows that a cure has not been obtained, I shall advise him again to remain in bed and shall make use of some revulsive on the skin. For this I shall have to choose between blisters, caustics, and punctate cauterization. I have no absolute preference for any one of these, for thus far my experience has not demonstrated the superiority of one over the other—nevertheless, punctate cauterization is the one which I shall use if after a month's rest in bed this young man still suffers a little on pressure and when walking.

(Punctate cauterization was applied, forty points, with a small iron rod, at white heat, while the patient was anæsthetized with chloroform. Six weeks afterwards all pain had disappeared and the patient was considered cured. He left the hospital, and has not since been seen.)

LECTURE VI.

I. HYPEROSTOSIS OF RIGHT FEMUR. II. NECROSIS OF LEFT TIBIA.

Some considerations upon diseases of the skeleton in the infant and in the adolescent—I. Hyperostosis of the femur and anchylosis of the knee following a non-suppurating epiphysary osteitis—Fresh inflammatory attack, also not terminating in suppuration—II. Necrosis of the tibia following a suppurating epiphysary osteitis—Fresh inflammation—Movable superficial sequestrum, immovable invaginated sequestrum—Long duration of this necrosis probably until adult life.

GENTLEMEN: Chance has recently brought together in our wards two patients suffering from the late consequences of the disease which you often hear me speak of as *acute epiphysary osteitis of youth.*

But first of all, I must make an explanation.

In pointing out to you the diseases of youth I do not mean, and I have never meant to say, that these diseases belong exclusively to youth, and are not seen at other ages; I wished to say that they were more frequent during youth, and that, as a rule, they took on at this age characters different from those which are seen in the same lesion at other periods of life.

I have been criticized upon this subject. Especially with reference to acute epiphysary osteitis, it has been objected that this disease is seen in childhood.

I knew that perfectly well, but I also knew two other things: first, that it is less frequent than in adolescents; second, that it is also less dangerous.

I knew also, in the third place, that osteitis of adults does not take on spontaneously, and without the intervention of solutions of continuity affecting at the same time the bones and the soft parts, those dangerous forms which occur almost spontaneously in the child and in the youth. However, to enable you to decide the question for yourselves I give you the statistics published upon the subject.

Dr. Cullot, author of a very good thesis,[1] gives the following table of the ages at which epiphysary osteitis appears:—

From 1 to 18 months . .	2 cases.	
" 2 to 6 years. . .	7 "	
" 6 to 10 " . .	10 "	
" 10 to 14 " . .	21 "	
" 14 to 18 " . .	33 "	
" 18 to 22 " . .	8 "	6 of which were between 18 and 19.
" 22 to 29 " . .	1 case.	
" 29 to 30 " . .	1 "	

M. Sézary,[2] who collected, also, for his graduating thesis, 92 cases, of which 57 were between the ages of 12 and 19, finds an average of 13 years. But the average of 33 cases observed by himself at the Hôtel-Dieu of Lyons was 16 years.

Klose's 13 cases average 13 years.

M. Chassaignac[3] mentions 23 cases, of which 4 were between 9 days and 10 years; 15 from 10 to 18 years; and 4 from 18 to 36 years old.

From all these figures, which have been reproduced in an excellent thesis by Dr. Salès,[4] it results, gentlemen, that the end of childhood and the first years of adolescence, until about the age of 19, are the periods of life during which appear, chiefly, but not exclusively, the diseases which we are about to consider. They are most often met with between the ages of 12 and 18.

And here let me say that in speaking of adolescence, we do not give it perfectly defined limits, sometimes it is considered as beginning at 12, sometimes at 13, sometimes at 14 years, and when we clinicists speak of the diseases of adolescence or youth, and especially of those which we attribute to a derangement of nutrition while the bones are lengthening, and at the moments of that exaggeration of vitality which prepares the union of the epiphyses, we know that this exaggeration presents numerous individual varieties. In some patients it occurs at 12 or 13, in others at 16, 17, and 18 years of age, in some the growth is progressive and slow without any excess of activity more marked at certain moments; in others, on the contrary, this excess of activity appears several times and irregularly. In short, a child 11, 12, or 13 years old may be adolescent as to his epiphyses, but not as to the rest of his body.

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[1] Cullot, De l'Inflammation Aiguë primitive de la Moëlle des Os. Paris, 1871.

[2] Sézary, De l'Adolescence. Thèse de Paris, 1871, and Gazette des Hôpitaux, 1871, page 9, et seq.

[3] Chassaignac, Traité de la Suppuration et du Drainage, vol. i. page 413.

[4] Salès, De la Marche et du Traitement de l'Ostéo-périostite dia-épiphysaire suppurée. Thèse de Paris, 1871.

At the time when I published my first work upon this subject,[1] pathologists and clinicists were accustomed to describe diseases of the skeleton according to the data of pathological anatomy and physiology without considering age, and without warning practitioners that such a form of acute osteitis appeared especially at such or such a period of life. My object was to call attention to this subject, and to show the relations between the age and growth of the skeleton on the one side, and the forms of spontaneous osteitis on the other, and I have seen with pleasure that subsequent works upon this subject have followed the path which I opened. I made certain reservations relative to childhood, because, not having practised in the children's hospitals, I could not know what took place in the first and second periods of childhood; I insisted particularly upon the frequency with which I had observed the diseases to occur in adolescents as compared with adults.

Since then my colleague, M. Giraldès,[2] has well shown that children may be affected, especially at the end of childhood, or, if you prefer, at that period of life which is between the end of childhood and the beginning of adolescence. The excellent works of Messrs. Gamet[3] and Louvet,[4] and those already quoted of Messrs. Sézary, Cullot, and Salès confirmed these assertions of M. Giraldès and myself, and enabled us to draw practical conclusions from this simple fact: the latter part of childhood and adolescence are exposed to forms of spontaneous acute osteitis which are seen much more rarely at other ages.

Let us now turn to the two patients with reference to whom I thought it necessary to present these preliminary considerations.

I. The first is a young man 19 years old, pale, with chestnut hair, but with well-developed muscles, showing no scars upon the neck, and giving no indication, past or present, of tubercular affection. He tells us that at the age of 13½ years, without appreciable cause, or after a blow which he does not remember very distinctly, he had severe pain in the right knee and the lower part of the thigh; that he was very ill at this time and had much fever; that after a few weeks an abscess was opened on the inner and lower part of his right thigh, which suppurated for a long time, and finally closed without the expulsion of any sequestrum or fragments; that at last a cure took place, leaving the knee slightly flexed and immovable, and compelling the patient to use a cane and a shoe with a heel three inches high.

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[1] Gosselin, Archives générales de Médecine, 1858, tome ii. p. 518.

[2] Giraldès, Leçons cliniques sur les Maladies chirurgicales de l'Enfance, p. 588.

[3] Gamet, Thèses de Paris, 1862.

[4] Louvet, Périostite phlegmoneuse diffuse, Thèses de Paris, 1876.

A week ago, without apparent cause, he again began to suffer a little in the lower part of his thigh and knee, and being no longer able to walk and work at his trade of shoemaking, he applied to us for treatment.

We find the knee completely anchylosed by fusion, the femur and tibia united at an angle of about 40 degrees—what we call angular anchylosis of the knee. There is no notable swelling at this point, and only a little heat.

Above the knee the muscles of the thigh are evidently smaller than those of the opposite side, but yet the lower third of the limb appears a little larger, and on grasping it with the whole hand I feel a very hard circular resistance which gives the idea of a femur much more voluminous than the other or a normal one. I know that one may be deceived by a lesion of the muscles, which I have found in two autopsies, and which has been well described by M. Aug. Ollivier;[1] I refer to atrophy of the muscles, with transformation into a very dense fibrous tissue, which cannot be clearly distinguished from the femur by the hand examining through the skin. But here, as the apparently bony swelling is very large, and as it involves the condyles of the femur themselves in points where there are no muscular fibres of the quadriceps, I infer that the tumefaction occupies, if not the whole, at least part of the lower third of the femur.

Notice also that this swollen portion is painful spontaneously, and upon pressure. As there is no phlegmon which could cause these pains, we may attribute them to the femur; now at this age the bones become more frequently and more easily painful when they are hypertrophied than they do in subjects in whom this condition does not exist.

Furthermore, there is no fever, no notable alteration of health, and the pains, more severe when the patient is standing or walking, have not so far been sufficient to prevent his sleep.

The diagnosis, gentlemen, presents two questions: What is this young man's present disease? and What was the former one which has evidently prepared this one?

As to the present disease, it is composed of combined lesions that are already old, anchylosis of the knee, and hyperostosis of the femur, with concomitant muscular atrophy. These three lesions are irremediable, and they are not what has brought the patient to the hospital. But there is further a recently added pathological condition, a subacute and painful osteitis in the region, and perhaps also in the thickness, of the hyperostosis. If we did not possess the antecedents relative to the acute disease six years ago, we should have to see whether this considerable swelling of the femur were not due to an osteo sarcoma. But with these antecedents, and in presence of the fact that for several years the swelling, instead of increasing, has diminished, there is no reason to dwell very long on this diagnosis, and remembering, furthermore, that hyperostosis is often the consequence of osteitis of the long bones, we need not hesitate long; it is subacute osteitis or fresh inflammation in an old hyperostosis.

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[1] Aug. Ollivier, Thèse de Concours pour l'Agrégation, Paris, 1869.

As to the etiological diagnosis I have nothing in particular to point out.

I shall tell you hereafter that in adults non-suppurating osteo-periostitis is often due to general causes: rheumatism, syphilis, or a feeble state of the constitution similar to the scrofula of children, a sort of acquired or late scrofula. Here none of these general causes can be accused. The fresh inflammatory attack appears to have been spontaneous, or if there has been a traumatic cause it has been a slight contusion of which the patient has preserved no recollection. Perhaps the age of the patient and the exaggerated nutrition of the bones have had some influence. It is true that the union of the inferior epiphysis of the femur was completed long ago, for one of the consequences of these osteites of adolescence is to hasten the union of the epiphysis. Nevertheless, I think the age has had something to do with the etiology; for you will often see in adults hyperostosis consecutive to simple or compound fractures, and you will notice that the inflammatory attacks, necrosis once ended, seldom occur so late.

Let us now consider the other question: What was the original affection, the traces of which we see here, and of which the present symptoms are a remote consequence?

From the information we have gathered, and from the analogy between what the patient has told us and what we have observed in a certain number of adolescents, there can be no doubt. This young man was affected at the end of childhood with that disease of which I spoke at the beginning, acute osteitis, ending promptly in suppuration; and as this osteitis appears to have been spontaneous, or, if traumatic, to have been caused by a slight injury, I feel sure it was one of those osteites which begin in the epiphysary cartilage itself, or in one of the adjoining surfaces of bone, and of which the predisposing cause is the work of ossification. I cannot say whether the periosteum alone has suppurated, or whether the compact tissue also, and especially the medullary substance, both that of the canal and that of the cancellous tissue, have participated.

I am convinced that in many cases of this kind all the constituent parts of the bone share in the inflammation, and that there is osteomyelitis at the same time with periostitis. But when the patient survives, it is very difficult, if not impossible, to show whether the deep portions of the bone have suppurated, as well as the superficial ones, or whether the osteo-myelitis has been non-suppurative, the periosteum, on the contrary, having been attacked and even destroyed by the suppuration. I shall hereafter have occasion to return to this subject; to-day, I say that there has been suppurative osteitis, at least on the surface, and general osteitis, probably non-suppurative, but presenting the form described by Gerdy as *hypertrophying* or *condensing*. This osteitis does not seem to have been necrotic, as it often is in like cases, and in this respect it is exceptional. But it has got well, leaving behind it the hyperostosis, which is the almost inevitable consequence of hypertrophying osteitis when it occupies the compact tissue of the long bones; and as the peculiarity of this hyperostosis is to preserve, for a certain length of time after its formation, a tendency to subacute or chronic inflammation, and as this is more marked during adolescence, we find in it the origin of the recent inflammation which to-day torments this young man.

Now, what should be our opinion as to the consequences of this disease? What we have to fear is suppuration. It is true that this may possibly occupy exclusively the cellular tissue, without participation of the bone in the process, and form what Gerdy called a *neighbouring abscess* (abcès de voisinage). Such an abscess would end like a simple one, without ultimate necrosis. But if the hyperostosis itself should suppurate, either on the surface, after destruction of the periosteum, or in the interior, that would indicate that a portion of the hypertrophied femur was necrosed, and then our patient would be condemned to long suppuration and to the fistulæ which precede the elimination (always very slow) of the sequestra or mortified parts of the bone. Considering all things, I do not much fear this termination, and for the following reasons: the constitution of the patient is not broken down, and as the osteitis escaped necrosis when it was acute, as the present age exposes a little less to it than the one at which the disease of the femur began, and finally, as the inflammatory symptoms are moderate and subacute, we have the right to hope that the present attack also will end by resolution, and that the patient will continue to escape necrosis, to which he will be so much the less exposed as he grows older.

To favour this fortunate termination we have only a very simple treatment to institute.

We shall keep the patient absolutely quiet, and advise him not to walk so long as there is any pain. We shall cover the affected part with poultices, and prescribe 8 or 10 grains of the iodide of potassium daily. If the disease lasts more than three weeks longer, I shall probably prescribe a blister, perhaps punctate cauterization. But I doubt if these measures are useful; for of two things one: either suppuration is inevitable, and then it is too late to have recourse to them, or resolution is to take place, and then rest and simple means suffice.

II. The other young man is 17 years old, and comes to us for the second time. The first time, two years ago, he was suffering with acute epiphysary osteitis of the right tibia, in its lower portion. We found him very ill, with much fever; and the affection ended with large abscesses, some of which communicated with the lower portion of the denuded bone, and the others seemed to communicate with the tibio-tarsal articulation. In a word, it was one of those serious cases, such as I have described,[1] in which the suppurative inflammation is propagated from the epiphysis and the bone of the neighbouring articulation. Fearing for the life of the youth, and seeing him exposed, if perchance he should not die, to a necrosis which would torment him for many years, I proposed amputation, but his parents refused absolutely. The suppurating osteo-myelitis and arthritis did not assume a form sufficiently putrid to cause purulent infection; the patient also escaped hecticity; and when he left the hospital, after six months' stay, he had the tibio-tarsal articulation anchylosed, without persistent necrosis of the astragalus, and preserved at the lower part of the leg, two fistulæ which suppurated freely, and through which the probe reached the tibia, which was denuded over quite a large surface and notably hyperostosed. He walked, furthermore, with the aid of crutches.

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[1] Gosselin, Mémoire sur l'Ostéite épiphysaire des Adolescents. (Archives de Méd. 1858.)

The subsequent course of the disease was such as it is in most of the young patients who survive acute epiphysary osteitis ending in suppuration, such, for example, as it was in the case of the young man whom you saw for a long time in our wards last year with necrosis of the femur consecutive to an osteitis of this kind. Suppuration has continued, and he has not been able to lay aside his crutches. New pains accompanied by fever appeared twice, and each time a new abscess formed and a fragment of bone was expelled.

A week ago a new inflammatory attack occurred, which confined the patient to his bed and forced him to seek admission to the hospital. You saw that the lower part of the leg was swollen, hot, red, and painful. The tibia is considerably hypertrophied, and the four fistulæ which lead to it furnish a large quantity of non fetid pus. The probe passed through these fistulæ reaches a denuded surface, and I showed you that, placing a probe in contact with the bone through one of the inner fistulæ, and passing another through the lower one, and pressing with it upon the corresponding portion of denuded bone, I transmitted the movement to the first probe. Thence I concluded that a portion of the bone was necrosed and separated from the rest, that is, that there was a superficial movable sequestrum. Exploring with the probe upon the other side, I felt upon the denuded surface an opening through which the instrument penetrated about half an inch and enabled me to feel another denuded portion, which was not movable, but which appeared to me destined to become so, and to form what is called in the description of necrosis *an invaginated sequestrum.*

The present affection, then, of this young man is a persistent necrosis of the hyperostosed tibia, with superficial movable sequestrum and invaginated sequestrum not yet movable. You know that by the name necrosis we designate a mortification of the bony tissue, that this mortification, affecting more often the compact than the cancellous tissue, is one of the modes of termination of suppurative osteitis, and coincides quite commonly with hypertrophy and condensation, so that these three things—suppuration, hypertrophy, and mortification—almost always go together. Undoubtedly Gerdy's condensing or hypertrophying osteitis can occur in the compact tissue of the long bones without suppuration and without necrosis. I showed you an example lately in an adolescent, and I shall often show you others in adults. But when this osteitis ends in suppuration, it is at the same time hypertrophying and necrotic; it is what you see distinctly in this case, and what you will also see from time to time in adults; but while in the latter, suppuration, hypertrophy, and necrosis occur, especially after extensive traumatic lesions in which there has been open wound and fracture, or, if you prefer, exposure of the bone to contact with the air, they have occurred in this young man, as is generally the case in adolescents, without external wound, without preliminary exposure, and after an osteitis either purely spontaneous or consecutive to a slight contusion without rupture of the skin.

What will be the ultimate course and what the consequences of this young man's disease? As for the present inflammation, it will cease in a few days, perhaps after formation of another abscess, and the patient's life is not endangered—first, because the fever is moderate, and, according to our experience, is not likely to augment and take on a dangerous character; and secondly, because it is the rule that exacerbated chronic osteitis in an old hyperostosis does not take on the dangerous forms of primitive acute suppurative osteitis.

To what is due this difference in danger between suppurative osteitis preceding hyperostosis, and osteitis consecutive to the latter, when the predisposing cause of age still exists? This is perhaps difficult to explain. I attribute it to differences in structure. Before hypertrophy all the cavities of the bone are filled with fat, the suppuration of which, as I have told you, contributes greatly to give to osteo-myelitis its well-known danger; moreover, there is the epiphysary line in and near which osteitis takes on in the adolescent the intensity and gravity with which you are acquainted. After hyperostosis has occurred the medullary cavity is filled up or greatly diminished, at least in the great majority of cases, and consequently there remains but a small proportion of fat. The cavities of the cancellous tissue and the canaliculi are also diminished and lose most of their fat; hence, as the principal element, suppuration of which causes the danger of osteo-myelitis, is reduced to small proportions, the reappearance of the latter is less dangerous. Furthermore, the epiphysary line has disappeared by ossification, another reason for the mildness of consecutive phlegmasiæ. Notice this, gentlemen: the anatomical result of osteitis is hypertrophy, and with it a certain tendency to relapse; but at the same time it diminishes the number and extent of the bony cavities in which are distributed, amidst the fat, the bloodvessels destined to nourish the bone—hence a certain tendency to mortification in spots, that is, to the necrosis which so often ensues. Consequently, if the favourable result of the anatomical changes caused by the primitive osteitis is to preserve against dangerous relapses, there is yet this other unfortunate result of keeping up prolonged suppuration and necrosis. I say, then, that this young man, in all probability, will not die, and will not even be dangerously ill.

In addition, as his tibio-tarsal articulation is obliterated, we have not to fear a propagation of the suppurative phlegmasia to the synovial membrane; but the necrosis will last for a long time yet, probably for years. Undoubtedly another sequestrum will soon be expelled, but there is still another in course of elimination. There will probably be fresh inflammatory attacks and other portions necrosed which will keep up the suppuration, and that may indeed last until the patient shall have outgrown the age during which the predisposition exists. I know that in this respect there are some varieties, that in certain subjects the new attacks of osteitis cease to occur long before the end of adolescence, notwithstanding the continance of the hyperostosis, and that sometimes these relapses and the continuation of the necrosis are seen in adults. But since we have to form a prognosis we should do it in accordance with the facts furnished most frequently in our practice. Now I noticed long ago that necrosis and persistent suppuration of the large long bones, especially those of the lower limbs, which have been previously hyperostosed by an acute spontaneous osteitis, are seen especially during adolescence, and end with it. The patient having become adult preserves only the articular deformities, the hyperostosis, and the diminution of the muscles caused by the original disease.

Treatment.—We shall make an incision to remove the superficial movable sequestrum which we felt, and at the same time make the explorations necessary to discover if by chance there is another; then we shall keep the patient in bed, apply poultices, and give him tonics. In a few weeks he will leave us, still preserving the fistulæ and the suppuration, and we shall have no other advice to give him than to avoid such fatigue and contusions as might cause another inflammatory attack.

Some one asked me this morning why I did not propose to this young man to relieve him of his present infirmity and his chances of relapse, by amputation of the leg. These are my reasons: first, amputation would endanger his life, which, in my opinion, is not threatened by the present lesions; and second, I have reason to hope, as I have just told you, that the infirmity is temporary and will disappear with adolescence, and that when from 25 to 30 years old he will walk more easily and will have no more pain and suppuration. In short, he will be cured, with a tibia a little large and an anchylosed articulation which will trouble him much less than an artificial limb, and will certainly be more agreeable to him than a mutilation.

LECTURE VII.

ACUTE EPIPHYSARY OSTEITIS OF THE LEFT FEMUR, WITH SUPPURATING ARTHRITIS OF THE KNEE. AMPUTATION OF THE THIGH.

Description of the piece—Difficulty of determining whether the periosteum is stripped off or destroyed—Suppuration and partial disappearance of the epiphysary cartilage—Diffuse suppuration of the cancellous tissue and the medullary canal—Pus in the articulation—Different names given to the disease—Preference for that of acute epiphysary osteitis—Three varieties of this disease: 1st variety, external periostitis without destruction of the periosteum; 2d variety, superficial osteo-periostitis with destruction of the periosteum; 3d variety, general deep osteitis—Difficulties and interest of the diagnosis of these three varieties.

GENTLEMEN: I show you here the specimens coming from an amputation of the thigh, which I performed the day before yesterday, upon a youth 16 years old who entered the hospital for a suppurating osteo-arthritis of the thigh and knee. The patient was taken suddenly, three weeks ago, after a long walk, with high fever which was at first thought by his physicians to be typhoid fever. But soon a painful swelling appeared at the lower end of the right thigh and the corresponding knee; then deep fluctuation was felt, and it was in this condition that the boy was brought to us after he had been ill twelve days.

We at once felt deep fluctuation on the outer and inner sides of the lower part of the thigh, and also very distinctly in the joint itself, which was notably distended.

The day after his admission I made two free incisions, one on the inner, the other on the outer side, and passing through the vastus internus and vastus externus I reached a large purulent collection and evacuated a pint of creamy, thick pus, slightly fetid and mixed with drops of oil. Passing my finger to the bottom of the abcess I felt the femur denuded on both sides. The articulation was not emptied at first, for by pressing upon it I made no pus escape through the incisions. I was not then sure that the arthritis, which was evident, had gone on to suppuration. The patient was a little relieved, but he remained unable to make any movement without suffering a great deal in the knee, which was slightly flexed, the limb resting on its outer side; and the fever continued with 130 pulsations and a temperature of 102° in the morning, and 103° to 104° in the evening.

The third day, by pressing upon the knee, I diminished its size and caused a quantity of pus to escape by the inner incision.

There was then no longer any doubt the abcess was articular as well as ossifluent. Knowing then from my own experience, and especially from the facts communicated to the Anatomical Society, in

1858, by my colleague and friend, Dr. Leon Labbé, at that time my interne at the Hôpital Cochin, that this affection is followed by a large proportion of deaths, either by pyæmia or by hecticity, and by long suppuration and necrosis when death does not take place, I proposed amputation to the patient and his parents as a means of diminishing the chance of a fatal termination.

The operation was performed, and examination of the affected parts gives us the following details:—

I first show you the cavity in the thigh, which contained the pus; it surrounded four-fifths of the lower quarter of the femur, not reaching its posterior part. The vastus externus and internus muscles were stripped from the bone and formed the outer wall of the cavity, the inner one being the anterior and lateral faces of the femur. This bone is, as you see, without periosteum. Whether the latter was destroyed, or stripped off with the muscles, I cannot say. You notice, however, that if we seek it on the under surface of the muscles, near the upper limit of the lesion, we do not find it distinctly. It appears that its continuity with the rest of the bone is interrupted, and I do not find on the muscles a fibrous layer resembling the periosteum. I see only a detritus which appears to belong to the muscle itself. In a word, I do not find distinctly a simple stripping off of the periosteum, and I believe rather that this membrane has disappeared by absorption or by gangrene and prompt elimination. In almost all cases of suppurating osteitis with denudation you will have this same difficulty in determining whether the periosteum is merely stripped off, or whether it has entirely disappeared.

At the surface of the denuded bone we see little else than an enlargement of the vascular canaliculi, which, on the contrary, would have been narrowed, and some of them closed, if the patient had lived and hyperostosis had occurred. We find that the peripheral portion of the epiphysary cartilage has disappeared, so as to leave a groove in its place. This groove is filled with pus, and evidently formed part of the purulent cavity. In order to examine the rest of the bone we have sawn it vertically and from in front backwards, so that the section reaches the articular surface between the upper insertions of the crucial ligaments. You see that the marrow above the epiphysis is red, infiltrated with blood, pus, and plastic material in the alveoli of the cancellous tissue and in the lower portion of the medullary canal, the lesions of which end about an inch below the point of amputation.

The epiphysary cartilage is destroyed in places and to an extent greater than was indicated by the groove we saw at the surface. Reddish, sanious pus is seen at the points where it has been destroyed. Above and below the cartilage the bony alveoli are infiltrated with pus, and the surface of section has a red, vinous color.

Finally, the articulation is filled with pus, the diarthrodial cartilage of the femur is destroyed here and there, and can be easily peeled off, exposing the compact sub-cartilaginous layer, itself eroded in places. The pus contained in the articulation communicated with that of the thigh through an irregular opening in the anterior part of the synovial membrane near the edge of the cartilage of incrustation, up to which, furthermore, the periosteum is destroyed. It seems that the synovial membrane adjoining the cartilage, and at the point where it covers the periosteum of the groove above the condyles, has also shared the destruction, so difficult to explain, of the periosteum. The diarthrodial cartilage of the tibia and the semilunar inter-articular cartilages are not affected.

In presence of these lesions you can understand the different names which have been given to the disease of which they are the expression. These names are not recent, and the difficulty about establishing one definitively was due to the fact that our predecessors had not studied the disease, and had confounded its description with those of deep phlegmon and necrosis.

I heard, at the beginning of my studies, Professor Roux indicate these deep abscesses about the long bones of the lower limb, and point out the fact of their appearance, especially in young people, and the denudation of the bone which ensues. I have even heard him express his regret at not having found in the authors any particular account of these abscesses.

But it appears to me that attention was only called seriously to this subject by two works of M. Chassaignac, one upon osteo-myelitis,[1] the other upon acute subperiosteal abscesses.[2] In creating the word *osteo-myelitis*, and causing its adoption, M. Chassaignac described lesions of the marrow of the bone which had been first published by Dr. Raynaud in a remarkable work.[3] But while this latter author had spoken only of traumatic osteo-myelitis following amputation, the former pointed out spontaneous or primitive osteo-myelitis and its coincidence with deep abscesses external to the bone, and with the disappearance or loosening of the periosteum.

Furthermore, M. Chassaignac has the credit of having indicated the frequency of these abscesses during early life, their development with intense febrile symptoms, and the concomitant and consecutive necrosis. He recognized that this affection has close relations with osteo-myelitis, that the latter differs from it especially by its coincidence with articular suppurations which do not accompany subperiosteal abscesses.

Still later, Klose[4] (of Breslau) published, under the title *Separations of the Epiphysis*, a suppurative inflammation of the extremities of long bones which causes a separation between the epiphysis and the diaphysis, and of which the anatomical and clinical description has much analogy with those of the osteo-myelitis and acute subperiosteal abscesses of M. Chassaignac.

Then similar lesions were described under the name of *juxta-epiphysary osteitis* by Dr. Gamet, of Lyons, and under that of phlegmonous periostitis by Dr. Louvet and M. Giraldès.

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[1] Chassaignac, Gazette Médicale, 1854, p. 505.

[2] Chassaignac, Abcès sous-périostiques Aigus. (Mémoires de la Société de Chirurgie, tome iv. p. 281.)

[3] Raynaud, Sur l'Inflammation du Tissu médullaire des Os longs. (Archives Générales de Médecine, 1831, tome xxvi. p. 161.)

[4] Klose, Archives Générales de Médecine, Aug. 1858.

Referring to these different descriptions and to the specimens which I have just shown you, you see that we might really employ any one of these names. There is no doubt, for example, that we have here M. Chassaignac's spontaneous osteo-myelitis, since the medullary substance is inflamed and suppurating, as is likewise the neighbouring articulation. In like manner the presence of a purulent collection in the position which this author assigned to acute subperiosteal abscesses would permit us to choose this appellation, just as the presence of the same collection at the point of union between the diaphysis and epiphysis, and for a certain distance along the femur, would justify the expressions "juxta-epiphysary osteitis" and "phlegmonous periostitis." And, finally, do you not see that the epiphysary cartilage is beginning to be destroyed, and that if this destruction had continued the epiphysis would have separated from the diaphysis and given us Klose's spontaneous separation of the epiphysis?

It seemed to me necessary to choose a name which should not localize the inflammation so much as others have sought to do in such or such part of the bone, which should indicate the origin of the affection in the exaggeration of the nutritive process, at the junction of the epiphysis and diaphysis, while the bone is lengthening, and which should at the same time indicate the period of life at which this exaggeration takes place. Therefore I used and continue to use the expression *acute epiphysary osteitis of youth.*[1]

Look at these specimens.

Here is an osteitis which is general and complex, since it occupies all the constituent portions of the bone, periosteum, bony tissue, medullary substance; and there is no more reason for calling it exclusively osteo-myelitis than periostitis or osteo-periostitis. It was acute, for it ended promptly in suppuration. It is very intense in and about the epiphysis; and, finally, it was developed in an adolescent. If the affection appears in a child I will willingly call it acute epiphysary osteitis of childhood, but it will remain none the less true that we shall be in the presence of lesions which are rarely seen in the adult, and for the development of which the incompletion of the ossification of the skeleton is the capital predisposing condition.

Now, to make the present case accord with those which you have already met, and those which you may hereafter meet, it is necessary to add that this epiphysary osteitis of youth appears clinically under several different forms.

First, there are the differences of location. The disease may develop in the upper or in the lower limbs, but it is much more common in the latter. You will find it especially at the lower portion of the femur, and lower extremity of the tibia; more rarely at the upper end of this bone. In one case which I have published[2] the suppurating osteitis appeared at the upper end of the femur, at the junction of its neck with the shaft, and of the upper with the lower portion of the great trochanter.

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[1] Gosselin, Ostéites épiphysaires des Adolescents. (Archives Gén. de Méd., 1858, vol. ii. p. 513.)

[2] Gosselin, loc. cit., 1858.

Then there are varieties of intensity. I think I may say that there exists a subacute form without fever and with moderate pains, which does not end in suppuration, but nevertheless leaves behind it hyperostosis and sometimes incomplete anchylosis. This form is rare. I cannot, at this moment, show you any examples; but I remember to have seen, in 1864, at the Hôpital de la Pitié, a boy 18 or 19 years old, who had incomplete angular anchylosis of the left knee, with a swelling of the lower portion of the femur, which, a few days before, had again become painful after a fall. This patient told us that he had been taken, three years before, without appreciable cause, with swelling and pains which had kept him in bed for two months; that his physician had expected abscesses, but that they had not formed, and that he had been left with an enlarged femur, and unable to extend his knee completely. According to all the appearances he had had a subacute, non-suppurating epiphysary osteitis.

The acute form advancing rapidly towards suppuration, like that of the patient from whom these anatomical specimens come, is the one you will most often see, and the principal characteristics of the disease will then be that it is accompanied by intense fever, that it causes great pain, and that it occupies a sufficient length of the affected bone to deserve the name of diffuse suppurating osteitis. But this acute form itself presents three varieties which depend upon the location and the abundance of the suppuration.

In the first variety, of which the patient described on page 38 offered an example, the suppurative inflammation appears to occupy only the external face of the periosteum. The osteitis is none the less complicated by it; but it is suppurative neither in the compact tissue nor in the medullary substance, but only between the periosteum and the muscles. The abscess heals without leaving either fistulæ or necrosis; but hyperostosis results, thus demonstrating that the entire thickness of the bone has been affected. It is in such a case that I should consent to use the term phlegmonous periostitis; and yet I should wish to add external, plegmonous, and suppurative external periostitis. It is certainly the least dangerous of all the suppurating varieties of epiphysary osteitis; but it is also the rarest.

In the second variety, such as was seen in the tibia of the young man of whom I have heretofore spoken (page 41), there was suppuration of the surface of the bone after destruction of the periosteum, and also in the peripheral or superficial layers of the epiphysary cartilage. The compact tissue and the marrow—that is, all the rest of the long bone—share in the phlegmasia; but they do not suppurate as the surface of the bone does; nor, if the neighbouring articulation takes part in the inflammation, does the arthritis become suppurative, probably because the intensity of the disease is not sufficiently great to propagate the suppurative form of the phlegmasia as far as the synovial membrane. This is the variety which M. Chassaignac described under the title of *acute sub-periosteal abscesses.* I should call it *diffuse phlegmonous osteo periostitis.* But I call your attention once more to the fact that in these cases the disease is not limited to the superficial part of the bone, it occupies the whole thickness; but the other parts do not suppurate; in them the osteitis remains plastic, and causes the hypertrophy of which I have so often spoken.

Finally, in the third variety, of which we have an example before us, all the constituent parts of the bone are not only affected, but suppurate, and the suppurative inflammation is propagated, either along the periosteum or along the parenchyma of the epiphysis, and through the eroded diarthrodial cartilage to the neighbouring synovial membrane. This is undeniably the most dangerous form, the one which I call osteo-arthritis. It ends very often in death, or, if the patient survives, in an interminable necrosis.

It remains now to decide whether the diagnosis between these different forms can be easily made. It is easy for the subacute form, and for that one of the acute ones in which the outer surface of the periosteum suppurates without destruction of the membrane, and without deep suppuration of the bone. It can be established especially by the aid of the general symptoms, which are moderate in these cases, and by exploration of the cavity when the abscess has been opened. If the periosteum has not been destroyed, there is no denudation of the bone; if it has been, there is. The only real difficulty is to distinguish between superficial suppurating osteitis and general suppurating osteitis; that is, at the same time superficial and deep, or osteo-myelitis. These two forms differ, perhaps, in the intensity of the general symptoms, which is greater in the second than in the first. But this difference is scarcely appreciable when you have only one patient before you. In short, in both cases the fever and all the resultant functional troubles are very marked, and the differences of intensity are too slight to furnish a means of diagnosis. The pus has no distinctive characteristics; the oily drops mentioned by M. Chassaignac are found in both forms, as is easily understood, since these drops come from the fat of the bone, and in both cases the pus is supplied by the bone, of which both the outer and inner portions contain this medullary fat, which exists as well in the external vascular canaliculi as in the alveoli of the cancellous tissue, or in the central medullary canal of the compact tissue. The diagnosis, and especially the diagnosis which is important for the treatment, is completely established only by the presence of pus in the articulation, or the appearance through the opening of the abscess of the bare dislocated extremity of the diaphysis. When one or the other of these has been discovered (and the former is the more common), there is no doubt of the existence of deep complex osteitis, such as M. Chassaignac had in view in his description of osteo-myelitis.

The interest of this diagnosis is due to the following reasons: So long as the suppuration is superficial, and the articulation is not affected, the preservation of the limb is the rule, and the surgical treatment consists chiefly of free incisions, to open the purulent cavity and allow it to be washed. It is true that death by purulent infection or hecticity may occur; but it is much less probable than when the suppurating osteitis is deep, because, as I have often had occasion to explain to you, pyæmia is chiefly due to suppuration of the marrow in osteo-myelitis.

The chances are, then, that the patient will get well when the disease is superficial. It is true that this will only be after a long-lasting necrosis, which will generally end with adolescence. On the other hand, when there are at the same time suppurative arthritis, suppurative osteo-myelitis, and osteo-periostitis, the chances of purulent infection and hecticity are so great that amputation gives the patient a better chance to escape with his life.

LECTURE VIII.

TARSALGIA OF ADOLESCENTS.—(FIRST, SECOND, AND THIRD DEGREES.)

1st degree, tarsalgia with contraction of the peroneal muscles disappearing after rest, reappearing after walking—Methods of examination in this disease—Treatment by rest and the immovable apparatus. 2d degree, tarsalgia with contraction which disappears only by the aid of anæsthesia, treated by straightening the foot during anæsthetic sleep. 3d degree, tarsalgia with retraction—Treated by section of the tendons of the lateral peronei—Examination and discussion of the theories of MM. J. Guérin, Bonnet (de Lyon), Nélaton, Duchenne (de Boulogne) concerning *painful valgus*.

GENTLEMEN: We have before us two young men suffering from that affection to which I have given the name *tarsalgia of adolescents.*

I. The first has been in the wards for more than two months, and will soon leave us. Let me describe briefly his condition at the time of admission.

He is 17½ years old. Two months before his admission into the hospital he felt pains in his left foot. When questioned as to their probable cause, he replied that he knew of none. He had never had rheumatism; he had not sprained his foot; he enjoys general good health, and nothing about him indicates a scrofulous constitution. We learned only that he had grown rapidly during the last year, that six months ago he commenced work as a grocer's boy, and that this work compelled him to remain on his feet all day, and to take long walks. At first the pain was slight, it began at the end of the day, disappeared during the night, and did not reappear at all during the morning; then about three weeks later the pain became sharper, was accompanied during the day by a slight swelling, and became at times severe enough to force him to rest for half an hour or an hour, after which he was again able to walk and attend to his work. Then for about a fortnight before admission the pain during the afternoon was so severe that he limped, and was obliged to rest, and even to lie down two or three times toward the end of the day.

The day he presented himself at our consultation, I called your ttention to the fact that his foot was turned outwards in the position which characterizes that vice of conformation known as *valgus*, and that it was kept in this position by persistent contraction of the extensors and lateral peronei.

The next morning, after he had been in bed for nearly twenty-four hours, we no longer found the valgus and contraction observed the day before; the foot possessed all its movements, those of laterality as well as those of flexion and extension.

Questioning him about the pain, he replied that, for the moment, he did not suffer at all. Still, by pressing with one finger on the outer side of the foot a little in front of the external malleolus, in a rather circumscribed point corresponding to the junction of the calcaneum with the cuboid, I awakened some pain. Pressure on the inner side, a little behind the tubercle of the scaphoid, caused a similar pain, and the patient told us that those were the points where he suffered after standing and walking all day.

You then saw me extend forcibly the great toe with one hand, place the thumb of the other against the under portion of the head of the first metatarsal bone, and ask the patient to press back my thumb. He did it as easily as with the other foot, which showed that the peroneus longus, which, as you know, is designed to form and maintain the arch of the foot, was at that moment neither paralyzed nor inert.

It was evident that to understand the affection thoroughly we should have to examine the patient again after he had walked for an hour or two; so I told him to get up the next morning at six o'clock and walk about the wards until the hour of my arrival (eight o'clock).

When we came to his bed the next day, you saw that the left foot had again taken the position of valgus, which we noticed the first day at the consultation, that is to say, the outer border of the foot was raised and the toes slightly turned outwards, and on the inner side the head of the astragalus was notably more prominent under the skin, and hence apparently larger, than on the other foot. But this was only an appearance, for the day before, when the foot was in its natural position, there was no difference in size between the two. We could also see under the skin the tendons of the extensor longus, extensor proprius pollicis, and tibialis anticus; and we could both see and feel above the external malleolus the rigid prominence of the contracted peronei. Finally, we could feel and follow with the finger along the outer side of the foot the prominent cord formed by the tendon of the peroneus brevis. When asked to let his foot go, to relax the contracted muscles, the patient was entirely unable, in spite of his good will, to meet our wishes. Grasping the leg firmly with both hands above the ankle, and raising it from the bed, I shook it sharply from side to side, but was not able to give any lateral movement to the foot, while by the same manœuvre on the right side I produced marked lateral movement. Then fixing with one hand the lower part of the left leg, and grasping the sole of the foot with the other, I tried in vain to turn the latter outwards or inwards. All my efforts were transmitted to the leg, and the foot executed no lateral movement, that is, none of those which take place in the medio-tarsal and calcaneo-astragalian articulations.

On the other hand, I could easily give the foot the movements of flexion and extension, those which take place chiefly in the tibio-tarsal articulation.

Examining then the sole of the foot, I found exactly the same arch as on the other side, so that if I had wished to use the name so often employed by our predecessors, I should have had to say "painful arched valgus." Furthermore the skin behind the inferior projection of the heads of the metatarsal bones presented the normal folds which go with the existence and proper conformation of the plantar arch.

Of what disease were these the symptoms? Of a singular disease, the nature and anatomical lesions of which are still imperfectly known, and which has three dominant clinical characteristics: pain, provoked especially by prolonged walking; outward deviation of the foot, or valgus; and prolonged contraction or contracture of the anterior and exterior muscles of the leg, or, if you prefer, of all the muscles supplied by the peroneal nerve. It is evident that in this case the valgus was not congenital, that it was accidental, and even temporary, since it disappeared completely after rest.

The question then to be answered was this: was the pain caused by and closely connected with the contraction, or was the contraction only the consequence of the pain which was itself the primitive phenomenon?

To answer this question in the case of our patient, I turned to his clinical examination, and to the remembrance of a similar case in which I was enabled to make an anatomical examination.

In our clinical investigation I called your attention to two things: first, according to the commemoratives pain was the initial symptom, not only of the disease, but of all the attacks which occurred at the end of the day. During two or three weeks the young man suffered without noticing any deviation of the foot; the latter only appeared later, and, in every painful attack of an evening, the valgus appeared only some time after the pain. Moreover, the first day, when, after twenty-four hours' rest, the muscles were relaxed and the valgus had disappeared, pressure caused pain, not along the course of the muscles of which I have spoken, but over the posterior bones and articulations of the tarsus. For me then in this case there is no doubt, the pain was primordial, was increased by walking, and caused, by reflex action, the muscular contraction and deviation of the foot outwards.

But then what was the origin and seat of this pain?

Here, I invoke the result furnished by pressure with my fingers. The pain which that caused could have no other origin than the bones or the articulations.

But I prefer to refer to the case, unique, I think, in science,[1] in which I was enabled to make an autopsy.

It was a young girl, 18 years old, who presented the same symptoms as this young man does, and who died suddenly of cholera a few days after admission to the Hôpital de la Pitié. The anatomical examination, the details of which I communicated to the Académie de Médecine,[1] showed us that the astragalo-scaphoid and calcaneo-cuboid articulations were affected with dry synovitis, that in several points the diarthrodial cartilages were destroyed by a process of erosion or ulceration, and that below these points the corresponding cancellous tissue was red and infiltrated with blood as in osteitis of the first degree. These lesions, similar in several respects to those of chronic dry arthritis, and to the principal of which Brodie gave the name of *ulceration of the cartilages*, left me no doubt of their connection with the clinical symptoms in this young girl. The ulceration mentioned, the subjacent partial osteitis, and the dry synovitis had become painful during exercise, and the pain had brought about contraction of the muscles and valgus.

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[1] I should add that M. Leroux, of Versailles, communicated to the Société de Chirurgie (*Gaz. des Hopitaux*, 1865) a case in which dissection of the foot showed articular lesions similar to those which I now mention. These lesions belonged to a case of tarsalgia of adolescents. But the foot was turned inwards, in varus, instead of being in valgus, as it was in all the cases which I have observed.

In my opinion, the same things have occurred in this young man, and in the three or four other examples which we see every year in these wards of different degrees of the same disease.

Let us now see, gentlemen, what there is that is strange or uncommon about this affection, and how far we can explain it.

The first thing that strikes us is that we are in presence of a variety of articular disease, chronic dry arthritis, which is found in the other articulations only at the end of adult life and the beginning of old age, and in these the tarsal articulation appears to be confined exclusively to adolescence. For it is found in subjects who, while they are growing rapidly, are exposed to fatiguing toil, and compelled to take long walks, often with the addition of a more or less heavy burden.

What connection is there between the growth of the skeleton and this arthritis, or rather arthro-osteitis with ulceration of the cartilages? I cannot say. To explain the osteitis of adolescents, I referred to the exaggeration of nutritive work going on about the epiphyses. But here in the astragalus there is no epiphysis, and the one on the posterior portion of the calcaneum is far from the articular surface on which the lesions appear; in my autopsy it was already united, and no lesion existed in it. We must then admit that completion of growth predisposes, without accompanying union of the epiphyses, to the lesion which now occupies our attention, and I invoke the process of growth because this is another of the diseases of youth. I do not deny its existence in children, although I have never seen an example, but you will not meet with it in the adult. You will see adults affected with irremediable valgus, but they will tell you their deformity began at the age of 16, 17, or 18 years.

But is the contraction of the muscles equally uncommon? No, and yes. I say no, for the clinic often shows us spasmodic contractions in connection with articular lesions. Think of coxalgia, at the beginning of which you find the joint fixed, often in extension, sometimes in very marked flexion, by all the peri-articular muscles, and especially by the psoas. Then remember the arthrites of the knee with permanent flexion due to contraction of the biceps, semi tendinosus, and semi-membranosus. Finally, does not temporary torticollis, which is also a disease of childhood and adolescence, appear in many cases to be caused by a contraction due to rheumatic arthritis of the cervical articulations?

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[1] Gosselin, Tarsalgie des Adolescents (valgus douloureux), Lésions anatomiques de cette Maladie. (Bull. de l'Académie de Médecine, 1865, tome xxx . p. 144.

But let us remain in the region of the foot. I have sometimes seen in adults, and I have shown in my clinic two patients who, whilst suffering from gonorrhœal tibio-tarsal arthritis, had a deviation of the foot inwards, which was clearly due to contracture of the tibialis posticus. These were not the muscles of which we are speaking to-day, but the contractures were due to an articular affection.

That which is unusual and very difficult to explain, is the constancy of the contracture of the anterior and outer muscles in adolescents affected with tarsal osteo-arthritis. This constancy is such that I can understand perfectly how eminent clinicists should have considered the disease as located in the muscles. When MM. Jules Guérin and Amédée Bonnet[1] (de Lyon) described painful splay-footed valgus, and advised as principal treatment tenotomy of the lateral peronei, it is incontestable that they believed in a deformity produced by contraction, and then retraction of these muscles.

When Nélaton compared this disease to writers' cramp, he thought it was a contraction, becoming painful, of the peronei and the extensors, just as in writers' cramp there is painful contraction of the flexors and extensors of the thumb.

This same idea of a lesion primarily muscular, led M. Duchenne (de Boulogne) to an analogous theory, according to which the origin of that variety of valgus in which the foot remains arched is an exaggerated contraction or contracture of the peroneus longus. Beyond the fact that it is impossible to prove this theory, it has the inconvenience of taking into account neither the initial pain, which is much more marked over the tarsal bones than along the course of that muscle, nor the articular lesions which I pointed out, nor the tendency to anchylosis which is one of the possible terminations of the affection. It offers also this singular contradiction that, according to it, as I shall soon tell you when speaking about another patient, contraction of the peroneus longus would give, with the exception of the hollow instep, exactly the same physical and functional symptoms as would incomplete paralysis of the same muscle, which latter, according to M. Duchenne, would produce the flat-footed valgus.

Furthermore, it was because in my opinion there were, together with an origin in the skeleton, consecutive effects, singular and important lesions of the muscles, in this strange disease of youth, that I proposed for it, in 1865, the name, which prejudges nothing of this nature, of *tarsalgia of adolescents.*

I add that in this patient we have to deal with what I have called the first degree of tarsalgia, that in which the pain, and especially the contracture and the valgus disappear after a few hours' rest, to reappear when walking has been renewed and kept up for a certain time.

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[1] Bonnet, Thérapeutique des Maladies articulaires, Paris, 1853.

What would have become of it if we had done nothing?

Perhaps a cure would have taken place spontaneously; but that doubtless would have been only in case the young man had given up for a time the fatiguing occupations which had been the occasional cause of his trouble.

I have met several patients who, from the information furnished by them, appeared to me to have had tarsalgia of the first degree, and to have been cured without surgical treatment by refraining from long walks. I treated in my private practice a young girl, sixteen years old, who had been affected with valgus for a week, after having felt pain for a fortnight when walking. She was relieved by keeping the bed for a week, and by avoiding for some time thereafter prolonged standing and walking.

But as, in our young man, the tarsalgia was very marked, and had already lasted several weeks, and as the necessity of working for his living would have led him to endure the pain after obtaining a slight diminution by temporary rest, I had every reason to suppose that the tarsalgia would have passed first to the second degree, that in which the contracture and valgus no longer disappear by rest, but only during anæsthetic sleep; then to the third, that in which the muscles no longer relax, even during sleep, and may be considered as having passed to the condition of permanent shortening, which you know by the name of retraction; perhaps finally to the fourth, that in which the medio-tarsal articulations, or at least one of them, and especially the astragalo-scaphoid, are anchylosed by fusion. For one of the consequences of the slight arthritis, of which you have seen the first degree in this patient, is the formation of one or more anchyloses. A few years ago I showed, at the Hôpital de la Pitié, a man fifty years old, in whose left foot there was, together with an old valgus, a union of the astragalus and calcaneum; and he told us that at the age of eighteen he had had a sprain, which he did not think it necessary to have treated by a surgeon, and in consequence of which this deformity was produced. I should add that this anchylosis, after having troubled him for a long time, and having rendered long walks impossible, had ended by becoming indolent, and causing no further functional trouble.

You see, gentlemen, that in speaking to you of the course of this affection when abandoned to itself, I made no mention of suppuration. I should fear it, perhaps, if I had found at some points of the tarsal region a diffused swelling and doughiness with semi-fluctuation, such as we find in fungous synovitis or white swelling. Not only were these signs absent, but moreover the existence of valgus and contracture led us to dismiss the idea of an articular affection which might terminate some day in suppuration. For it is a remarkable fact, and one abundantly proven by clinical observation, that arthritis tending to suppuration is not accompanied by these symptoms (contracture and valgus), and when we see these latter appear, especially in a patient who shows no signs of scrofula, we know that the affection will end neither in articular suppuration nor in caries.

In this respect the prognosis was favourable; but it had this inconvenience, in case the disease had been abandoned to itself, it would undoubtedly have lasted several years, during which the young man would have been constantly disturbed in his occupations, and it might perhaps have ended in definitive retraction and anchylosis, which are always the cause of great trouble in walking until adult life has fairly begun.

Treatment.—It results from all that I have told you, that the chief indication in this case was to keep the foot motionless. In that way we could cause the pain to disappear, and with it the muscular contracture which was its reflex effect. It was also the means by which to obtain the cure of the articular lesions, the existence of which we had the right to assume; notably that of the osteitis and the ulceration of the cartilages. I am unable to tell you if this ulceration is capable of cicatrizing purely and simply, without restoration of the cartilage; or if the latter can be reproduced, which does not seem to me impossible at this early period of life. But I have had no anatomical demonstration on these points. I only know, from the results which I have obtained in a dozen patients whom I have been able to follow, that all the clinical phenomena of tarsalgia of the first degree may disappear after a rest of two or three months.

I therefore applied an immovable apparatus whilst the muscles were well relaxed. While the foot was kept turned inwards, I wrapped about it a thick layer of cotton batting, which I carried nearly half way up the leg; over this I rolled tightly a dry bandage, then another soaked in plaster mixed with a solution of one part of gelatine in a thousand parts of hot water. The plaster dried in a few hours. The patient remained in bed for six weeks without having the bandage removed; at the end of this time I let him sit up, and a fortnight later—that is, at the end of two months—I removed the bandage, and let him walk as much as he chose.

To-day, a week later, all appears to be in good condition. No pain, no contraction has reappeared. I hope the young man is cured, and I shall let him leave the hospital in a few days. I shall advise him to wear an elastic stocking and snugly-fitting shoes, so as not to turn or sprain the foot, and thus bring back the tarsalgia; also to come and see us from time to time; and if I notice that his foot has any tendency to turn outwards again, I shall make him wear a laced shoe, the sole of which will be nearly half an inch thicker on the inner than on the outer side, so that he will have to walk with his foot turned inwards.

Unfortunately, I am not certain that the cure is final and definitive. I have seen, in several patients who had been treated in this way, the pains, contractions, and valgus reappear a few weeks after they had again begun to walk, so that it was necessary to repeat the treatment. The reason doubtless was that the articular lesions were not completely healed; for you understand that in certain cases the ulceration of the cartilage is not cicatrized or repaired in two months, and it is to be regretted that there is no sign by which we can determine the persistency of the lesion after it has been sufficiently diminished by treatment to no longer occasion functional disorders, the reappearance of which is afterwards caused by walking and standing.

II. The other patient whom I mentioned at the beginning is eighteen years old. He thinks he sprained his left foot three months ago; he suffered but little from it, and kept at his work as house servant, remaining on his feet most of the day. For a few weeks he had moderate pains, which, like those of the preceding patient, were notably greater at night. Then he noticed that his foot turned outwards when he suffered most. This deviation disappeared by rest; but a fortnight ago it ceased to disappear, the pain became greater, and a week later the patient was obliged to enter the hospital.

The first and second days, after twenty-four and forty-eight hours' rest, we found that the left foot was flat, almost without any plantar arch. But this conformation is not connected with the present affection; it is old, perhaps congenital, although the young man cannot give us any categorical information on this point. In any case, it is as marked upon the right foot, which is the seat of no disorder, as it is upon the left, which has been lame for some time. Further, we find the same physical and functional symptoms as in the preceding patient; that is, deviation of the foot outwards. apparent enlargement of the astragalus, suppression of the lateral movements of the foot, pain upon pressure on the outer side over the calcaneo-cuboid articulation, and prominence of the tendons of the extensors and lateral peronei.

It was necessary to know if the shortening of the muscles, which was betrayed by the prominence of the tendons and the deviation outwards of the foot, was definitive and irremediable, or if it could disappear and be replaced by relaxation. You saw that the shortening persisted in spite of the repose. In order to ascertain if it could cease, I subjected the young man to the influence of chloroform, and after he had become well anæsthetized you saw that all the muscles were relaxed, and that I profited by it to turn the foot inwards, and fix it with a plaster apparatus.

In this case then, as in the preceding one, we had to deal with tarsalgia of adolescents, but it was tarsalgia with splay-footed instead of arched valgus. The succession of the phenomena—first, pain without contracture, then pain with temporary contracture, finally pain with prolonged contracture and valgus without intermittence—authorized me to believe that this was again a disease, the origin of which was in a lesion of the tarsal articulations, but in which the contracture, a secondary reflex effect, was liable to become of chief importance, because prolonged contracture might become retraction, that is, the muscles would be unable to relax, and as this retraction would be inevitably accompanied by immobility of the joints, the latter would be so much the more disposed to anchylosis. If I have obtained by means of the anæsthesia a permanent relaxation, if, the articular lesions disappearing under the influence of rest, the pains are not reproduced and no longer cause reflex muscular contraction, the articulations will be able to renew their functions, and the foot to re-establish itself in a normal condition. It was with this hope that I applied the plaster apparatus upon the foot placed in varus after anæsthesia.

I must now ask again if the explanation which I repeated here of the lesion which now occupies us is a sound one, and if we ought not to invoke the theory of M. Duchenne (de Boulogne). This theory is as follows: Splay-footed valgus presumes insufficient action on the part of the peroneus longus, since the action of this muscle, by its simple tonicity, is to maintain the hollow of the instep by drawing the first metatarsal bone downwards and outwards. The origin of the affection might then be in this muscle, which would contract too feebly, or, as the author says, might be the seat of an impotence. In consequence of this impotence the foot would flatten; the plantar nerves, having become painful by the increased pressure, would provoke by reflex action a painful contraction of the peronei and extensors; perhaps, even, the flattening of the foot might subject certain points of the articular cartilages to an unaccustomed pressure which would cause their ulceration.

I ought to say, however, that M. Duchenne, in his last article upon this subject,[1] does not say much about the articular lesions, or the origin of the pains. I do not clearly understand whether, in his opinion, these latter have their origin or their principal seat in the impotent muscle, in the muscles contracted consecutively, or in the nerves, or even in the bones and the articulations.

This is, furthermore, the objection which I address to all those who attribute valgus to a functional lesion of the muscles. Why this radiating pain? Why, above all, this pain on pressure when the muscles are relaxed and the patient at rest; this pain which, moreover, in most cases, is the initial phenomenon and precedes contraction for quite a long time?

In the present case I cannot admit the impotence, always very problematical, of which M. Duchenne speaks. My chief reasons are that the flat-foot far antedates the pain, and that it exists upon the right side where there is no pain, as well as upon the affected left side; that the pain, as I have just said, was the initial phenomenon, and that finally before using anæsthesia we found the peroneus longus contracted as well as the peroneus brevis. Perhaps they will claim that this muscle, at first impotent, became afterwards contracted. I will grant it if they wish; but I ask how then will they prove this impotence to have been the cause of the trouble? Suppose the theory correct, it cannot be demonstrated by clinical study in cases like this one, where the foot was flat long before the appearance of painful symptoms.

I recognize, too, that M. Duchenne rests his theory of impotence upon a powerful argument; the cure of certain patients affected with splay-footed valgus by faradization of the peroneus longus. But this argument should not have too much weight. Whatever we may think of the theory, there will always be a singular functional lesion of the muscles in tarsalgia, and I understand how the passage of electric currents might advantageously modify this lesion and the trouble of innervation which causes it.

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[1] Duchenne, De la Crampe du Pied, ou de l'Impotence fonctionnelle du long péronier et de la Contraction fonctionnelle de ce Muscle. Union Médicale, tome xxxviii p. 599, 1868. It will be noticed that the case of splay-foot reported in this article was that of a woman forty years old, and not of an adolescent.

I do not accept then the theory of impotence, because clinical and anatomical study of the disease does not confirm it. But if necessary, I shall make use of the therapeutical resource offered us by M. Duchenne. If, after two months of immobility in a good posture, the pain and contraction return, I shall try electrization of the peronei and the anterior muscles of the leg. You may have seen last year a youth affected with flat-footed tarsalgia, who improved and seemed to be cured by twenty applications of electricity; but I still think, that, by reason of the presumed beginning of the disease with articular lesions, we shall do well to first combat these lesions by immobility, and to address ourselves to the muscular element only when it shall have taken a marked predominance, and an importance which it had not at the beginning.

III. Tarsalgia of the 3d degree with retraction of the lateral peronei; treatment by tenotomy.

Here is a new case of tarsalgia in a subject 19 years old. The foot is arched and in valgus. The extensor muscles relax by rest, but it is not the same with the lateral peronei; they remain tense and prominent under the skin. I anæsthetized the patient, but did not get them to relax. I am then justified in thinking that these muscles are definitively shortened by the production, consecutive to prolonged contraction, of the condition which we call retraction. The commemoratives are also favourable to the opinion that there was first pain in the articulations and bones, and that the contracture occurred afterwards. Now that the retraction exists, the muscular lesion has become the most important. For, even if the articular lesions should diminish, the foot would still remain deviated outwards, a condition which would make walking difficult and at times painful. I know that after a time this difficulty and this pain would cease, but still they would exist for a certain number of years. Moreover, instead of diminishing, the articular lesions might extend and terminate in the anchylosis characteristic of the 4th degree of tarsalgia, anchylosis which would still cause functional disorders for a certain number of years.

It is in cases of this kind that tenotomy of the lateral peronei is indicated. I consider it useless when the contracture can be overcome by rest or anæsthesia.

You saw me perform it yesterday on this patient. It consisted of a first time, in which I made a fold in the skin, and pricked its base with a pointed tenotome three finger-breadths above the external malleolus. In a second time I introduced through this opening, between the skin and the posterior face of the tendons, the blade of a pointed tenotome lying on the flat. I then turned the blade towards the tendons and divided them, one after the other. I was at once able to turn the foot inwards and fix it there with a simple roller bandage, and in four or five days, when the slight cut in the skin is healed, and we are sure there will be no suppuration, I shall apply a plaster apparatus to fix the foot and keep it slightly turned inwards. I have already performed this operation twice for tarsalgia of the 3d degree (with retraction of the peronei). The patients met with no accidents, and left the hospital apparently cured. As they have not come back to me, I have reason to hope that the cure has been maintained.

If from the results of clinical investigation we had reason to think that the peroneus longus did not share in the retraction, and that the peroneus brevis alone was affected, we might spare the first, and divide the second only on the dorsal surface of the foot. I know that M. Duchenne (de Boulogne) has recommended this modification for those cases which he attributes to the impotence of the peroneus longus. Thus far I have met with no cases of this kind. If I should meet with any I should not hesitate to divide the peroneus brevis alone.

PART II.

FRACTURES OF THE LIMBS.

LECTURE IX.

ANATOMICAL AND CLINICAL PHENOMENA OF CONSOLIDATION AFTER FRACTURE OF LONG, FLAT, AND SHORT BONES.

Necessity of studying consolidation in long bones, flat bones, and short bones. § 1. Consolidation of the shaft of long bones:—1st period, when the fragments are end to end—when they have overridden—Study of the process in a guinea-pig—Repair of the periosteum; 2d period, musculo-periosteal capsule—Its successive transformations into fibrous and fibro-cartilaginous substance—New differences according as the fragments are end to end or overridden; 3d period, completion of ossification—Interpretation of the provisional callus and the definitive callus; 4th period, obliteration of veins—Synovitis of neighbouring tendons and articulations—Muscular atrophy. § 2. Consolidation of the extremities of long bones. § 3. Consolidation in flat bones and short bones.

GENTLEMEN: You will find in your books rather lengthy descriptions of the consolidation of fractures, descriptions in which mention is made of experiments upon animals, and of the authors of these experiments. It is undeniable that this subject is one of those in which experimentation has been most useful, for it is seldom that we have occasion to study upon man the anatomical character of consolidation, death happening very rarely during its course. But there are some parts of the skeleton upon which experiments are difficult to make, and, in consequence, have not been made; these are the spongy ends of the long bones and the spongy short and flat ones. In the first two the force cannot be concentrated with sufficient exactitude upon the parts which we wish to study to produce the fracture at the desired point; in the last we are liable to injure at the same time the organs contained in the cavity which the flat bone contributes to form, and to cause death before the time necessary for the study of the consolidation has elapsed. The result is, that fracture of the shaft of long bones has been well studied, for these experiments are easily made, and that the ideas thus acquired have been a little too freely applied to fracture of the extremities of these bones, and to the short and flat ones.

It is true that in his thesis, so justly esteemed, Dr. Lambron[1] has indicated perfectly the differences presented in the formation of the callus at different points of the skeleton. But as this distinction is made only at the end of his work, and after a great display of erudition which calls attention only to the authors of experiments upon the diaphyses, and as it is not made sufficiently prominent, I think, perhaps, proper attention has not been paid to it. It therefore seems to me indispensable, in order to leave no false ideas in your minds upon this subject, to describe separately consolidation in the shaft of long bones, in their extremities, in the short bones, and in the flat ones.

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[1] Lambron, Thèses de Paris, 1842.

§ 1. CONSOLIDATION IN THE SHAFT OF LONG BONES.

I show you here twelve femurs of guinea-pigs, the shafts of which present different periods of consolidation after fracture. The shortest of these periods is forty-eight hours, the longest ninety days. I do not claim to apply to man all the results which we find here. I wish you to remark especially that in these animals the work of consolidation advances more rapidly than it does in our femurs, and in most of the bones in the human race. For, besides the varieties in the aptitude of each kind of animal, there is a rapidity which depends upon the size of the bones. The smaller they are, the more rapidly do they consolidate, and as the bones of guinea-pigs are much smaller than those of men, this is the principal reason why the fractures which I now show you have advanced so much more rapidly towards a cure.

Leaving this rapidity out of account, we find the work of repair is accomplished in these animals, as in us, in three periods, of which you here see specimens sufficiently well marked.

1*st period.*—Clinically, we have a first period which I seldom fail to point out to you in fractures of the large long bones. It is characterized by three principal symptoms: ecchymosis, and its progressive extension to a certain distance from the fracture; swelling of the limb; spontaneous pain, and especially pain increased by pressure and motion. The first of these symptoms is sometimes absent, the other two almost never. We call this first period *inflammatory*, because the swelling and the pain, accompanied sometimes by a little redness and heat, the febrile movement which is added in certain cases, can hardly be explained otherwise than by an inflammation. This period lasts, in the human race, for from six to fifteen days, more or less, according to the size of the bone, the degree of the contusion, and the idiosyncrasies.

In the guinea-pig this period is shorter, but the anatomical and physiological phenomena which occur during it are the same as in man. They differ a little if the fragments are end to end or if they have overridden.

There is one point, however, which is common to all cases, and which we find in these specimens of recent fracture: it is the effusion of blood between the fragments, in the thickness of the periosteum, between the periosteum and the bone, in the medullary canal, and in the muscular interstices, to a certain distance above and below the solution of continuity. In the most recent fracture of these four, the blood is the most abundant, most coagulated, and purest. In the oldest, a week, the blood is less abundant, less coagulated, and more liquid. Why this last circumstance? Is it because the solid part of the blood, the corpuscles and the fibrine, have been in part absorbed, and the serum has remained? But this is not what usually happens. The serum is the first to be absorbed, and there remains a thick paste formed by the clots. When, instead of a paste, the collection becomes more liquid, as is sometimes seen in subcutaneous effusions of blood, we attribute it to the effusion of a new liquid, the serosity, into the collection, and its mixture with the blood. Is it not probable that the same thing has taken place here, and that the blood has become a little more fluid by the addition of a certain quantity of serosity? And, as this has occurred under the influence of the inflammatory process, we may consider it as the plastic or coagulable lymph pointed out by Hunter, as the blastema of contemporary histologists, that is to say, as a product analogous to that which is furnished by all solutions of continuity, and which is capable of undergoing the transformations necessary to ultimately reconstitute the divided tissues. In this serosity you find also the substance which the ancient authors, and, in the eighteenth century, Haller called the bony or glutinous juice poured out at the beginning of consolidation.

The effusion and infiltration of blood are about the only lesions which I shall show you in the most recent fractures, those of the second, third, and fourth days.

I. But here is one a week old, in which the fragments are nearly end to end. There is still some of the sero-sanguinolent liquid, but you see that continuity is re-established on the outside of the bone by a quite thick, fibrous-looking substance, forming about the fragments a casing or capsule, which is not sufficiently stiff to prevent their moving upon one another. By its outer surface, this capsule is in relation with, and even very closely adherent to, the deep muscular layer, and is continuous above and below with the periosteum. Its inner surface looks towards the fragments, and is in contact with the sero-sanguinolent and glutinous liquid interposed between them. In this capsule you find what Duhamel, Dupuytren, Breschet, and Villermé, described under the name *virole externe*, external ferrule. What is this ferrule? How, and by what has it been formed? If we were sure that the periosteum had not been torn when I broke the bone, we should say that it had been formed by this membrane which had become inflamed and thickened in consequence of the accident. But as I took care, after having made the fracture, to press the fragments several times outwards and inwards, I presume that the periosteum was torn, if not all around the bone, at least over a great portion of its circumference. If, then, we find to-day the continuity re-established, it is because repair or cicatrization has taken place by the thickening and rapid transformation into connective tissue of the plastic lymph exuded and mixed with blood, of which I have just spoken. That does not prevent the periosteum from being thickened above and below the solution of continuity. But I want you to notice that in addition to this thickening, there has been formation of a new periosteum all along the solution of continuity of the primitive periosteum; and it is probable that the materials for this repair have been supplied not only by the periosteum itself, but also by the muscular layer which has participated, more or less, in the solution of continuity, and which, at all events, participates in the consecutive phlegmasia. You will thus appreciate what there was of truth and what of exaggeration in the celebrated opinion of Duhamel, an opinion shared by many experimenters, and notably by Dupuytren, Breschet and Villermé, Flourens, Lebert, that the periphery of the callus, what they called the external ferrule, was formed by the thickened periosteum. This is true for the portions of this membrane which lie above and below the solution of continuity, but at this latter point the capsular ferrule is completed by a tissue of new formation which is a periosteum, if you choose, but a new or cicatricial periosteum which is the result of a prompt transformation of the lymph or blastema exuded after the accident. There was evidently exaggeration on the part of Duhamel and his successors, when they attributed the whole ferrule to a thickening of the normal and primitive periosteum.

As for the marrow and the space between the fragments, you see there nothing more than the infiltration of blood, and thus you determine a first period characterized at once by effusion of blood, effusion of lymph, repair by means of the latter of the periosteum, and its thickening, which seems to me to be undeniable, and as to the existence of which, I am surprised to see doubts expressed in some works, particularly in that of Billroth.

II. Here now are two guinea-pig femurs broken eight and nine days ago, in which the fragments, instead of remaining end to end, have overlapped. You still find liquid blood at the extremity of the fragments and between the surfaces where they correspond to one another. But you notice that the periosteal casing is not so complete as before. It is interrupted at two points, those which correspond to the greatest prominence of the overlapping fragments, and its continuity exists only over part of the circumference of the fracture. The repair of the periosteum has been incomplete. It is lacking at those points where the separation between the edges of this torn membrane was too great, or where there was interposition between these edges of one of the fragments. You understand from this how inexact it was to say, with Duhamel, that in every case there was a complete periosteal ferrule which, by its ulterior transformations and its interfragmentary prolongations, formed the whole callus. The truth is that the periosteum contributes to a certain extent to the formation of the callus, to a very great extent when it has not been torn at all, or when, having been torn, the edges of the tear have been brought together by the exact setting of the fragments, but to a much less extent when the torn edges have been separated by a great interval, or by the interposition of overlapping fragments. I am now going to show you that nature has other resources than the periosteum, and that the repair of broken bones must not be attributed to this membrane alone.

2d period.—Look at these four femurs (still those of guinea-pigs), which were fractured ten, twelve, fifteen, and twenty days ago.

I. Of not one of them have the fragments remained end to end, as happens when the experiment is made upon a dog, and when immobility has been obtained by means of some apparatus. Here I was not able to keep on any apparatus, on account of the disposition and smallness of the limbs, and the vivacity of the animals. Therefore, in order to describe to you that which takes place when the fragments are brought end to end, I am forced to refer to what I have observed upon dogs in which I have obtained this result, and to the reports of other experimenters who have observed facts of this kind.

In such cases, we find at this period, quite a thick capsule, adherent to, and enveloping the two fragments. This capsule appears to be formed by the periosteum; but it is doubled externally by a muscular layer which adheres closely to it, and which you will soon verify upon our overlapping fragments. The union is so close, that we may believe that the deep muscular layer has taken part in the formation of this external callus. This capsule, which we shall therefore name *musculo-periosteal*, is much more dense than the former ones; it adheres closely to the fragments, has a grayish appearance on section, and when examined under the microscope, shows cartilaginous cells. In the earlier cases it was the fibro-cellular callus, now it is the fibro-cartilaginous callus. On section, we see a certain number of orifices, through which the blood oozes, and which belong, some to the natural vessels of the membrane, others to vessels of new formation. Here and there can be already seen a few calcareous spots scattered through the thickness of the fibro-cartilage, and which are the first points of ossification of the latter.

I do not wish to dwell too long upon the intimate mechanism of the transformations which have taken place; that of the plastic lymph into a cellular, or connective substance for the new portion of periosteum; that which brings about the thickening of the old periosteum; then the invasion of the fibrous tissue by the fibro-cartilage, and the bony deposits in the latter. Nor do I wish to discuss the question whether, instead of a transformation of the primitive elements into others, there has not rather been a substitution, that is, a successive replacement of elements and tissues by others. For these questions are still under discussion, on account of the difficulty of settling them by histological examination, and, furthermore, these studies have no very direct clinical application. I will remind you only, in order to enable you to understand these controversies, and their degree of utility, that, at the beginning of the repair, and thickening of the periosteum, we find in the organic gangue, rounded nucleated cells, similar to those which precede the formation of our normal tissues. For the French school, represented by M. Chas. Robin, these primitive cells are formed in the exuded lymph, which we compared to a blastema. For the German school, represented by Virchow, they come by proliferation from the cells of the torn tissue. It makes but little difference to me whether you adopt the one or the other of these theories, I have no unanswerable arguments for either;

but I believe that the French opinion is better supported by observation than is the German.

A little later we find fibres of connective tissue, then cartilaginous cells, and here again I am unable to say if these are transformed primordial cells, or if, as M. Robin[1] claims, the fibres have grown beside and in the place of the latter, that is, by a substitution instead of a transformation. As to the deposits of calcareous molecules, soon supplied with thin bone, corpuscules, and vessels analogous to those of Clopton Havers, no one is able to say how they are formed; quite recently they have advanced the theory, without, however, being able to prove it, that the corpuscules, or osteoplastes, were the result of a calcareous infiltration of the primitive cells which I have just mentioned. As for myself, I can suggest nothing else by way of explanation, than a tendency, a nisus, analogous to that which must be admitted for the primitive formation of the bones. This nisus exists in the points of our organism where the skeleton is to form, and it still exists in those where, a longer or shorter time after its formation, a solution of continuity occurs.

But, thus far, I have spoken to you only of the periosteum; let us now see what has taken place (when the fragments are end to end), in the other parts of the fracture, in the medullary substance, and the compact tissue of the fragments themselves.

As for the medullary substance, as it is not well marked in these small animals, I can show you only the anatomical modifications which have been observed in the large animals, and even in the human race. However, after separation of the fragments, and comparing the interior of the canal with that of the other side which is healthy, you see in the centre of the bone a gray coloration, a greater density of the contained substance, and a diminution of the fatty aspect. It is evident that the marrow has been modified in its texture, and I do not think that I overstep the limits of permissible hypothesis in telling you that this marrow has been inflamed like the periosteum. There has been medullitis at the same time with periostitis. This inflammation has likewise given birth to plastic lymph, and this has been replaced by a fibro-cellular substance at the same time that the fat has been absorbed. It is even possible that cartilaginous cells have already appeared here. Thus far, I have not found any; but, as every one admits that the medullary substance becomes cartilaginous, and then bony in the process of consolidation, I suppose that the cartilage would soon have been developed, if it is not so already. We have then here what the authors have named the internal ferrule, or the beginning of that part of the process of repair which is performed by the medullary substance. But, the work is not so far advanced as it is on the side of the periosteum.

Now look at the end of the fragments. In the inter-fragmentary space there is no appearance of consolidation; we find there only a little blood, or, rather, sanguinolent serosity, and if it were not for the thickened periosteum and marrow, we could easily separate them from one another. Still the compact tissue of the extremity of the fragments is red; if we detach the periosteum for a certain distance above and below, we find the compact tissue pink and its vascular canaliculi enlarged. We have then here the anatomical characteristics of non-suppurating osteitis of the compact tissue. I give the name *plastic* to that osteitis under the influence of which the exudation destined to repair is poured out, by opposition to the osteitis in which there is formation of pus with or without a concomitant reparatory process.

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[1] Dictionnaire de Médecine et de Chirurgie, par Littré et Robin (13th edition), Art. Cal.

The anatomical modifications of this period in a fracture set end to end may then be resumed in this: periosteum thick, fibro-cartilaginous, with beginning of ossification; marrow dense, fibro-cellular, soon becoming cartilaginous, but without bony deposit; no sign of interfragmentary callus; osteitis on the surface and in the thickness of the compact tissue of the fragments. In a word, repair by means of the periosteum and the muscles more advanced than repair by the other tissues.

II. We have now to see what has taken place in this second period (from the eighth to the fifteenth day) in overriding fractures. You still find here the fibro-cartilaginous condition of the periosteum and the deep muscular layer, with beginning of ossification. But as the periosteal capsule is incomplete that part of the work of repair which is performed by this capsule is necessarily less solid than in the preceding case. As to the marrow, it is grayish and thick as when the fragments are end to end; but that of the upper and that of the lower fragments no longer correspond on account of the overriding; consequently this thickening of the medullary substance does not help the consolidation. But between the fragments there is a fibro-cellular, partly cartilaginous substance which aids in keeping them together. This is the beginning of an interfragmentary callus. But it is furnished exclusively neither by the marrow nor by the compact tissue; it evidently has its origin in all the surfaces which are brought into contact with one another by the overlapping. Such are the outer face of the periosteum and a part of the compact edge of the fragments. There, in a word, we must not seek circular repair in the periosteum nor in the interfragmentary compact tissue, still less in the marrow which contributes nothing to it since its two divided surfaces are removed from one another. A mixed lateral interfragmentary callus is produced, the materials of which are formed by the muscles and by the outer surface of the periosteum, without its being possible to prove that this latter is thickened and transformed, and without our being able to admit anything else than the effusion from it, as well as from the surrounding cellular and muscular tissues, of plastic juices which are ultimately transformed. But we must not expect to find regularity of the phenomena which we observed in the end-to-end fractures, and which the authors have erroneously indicated as occurring indiscriminately in all fractures.

3*d period.*—During the third period, which lasts from the fortieth to the sixtieth day, new anatomical modifications ensue in the fibro-cartilaginous substance which was formed during the second. The most important is the formation of the bony substance, that is, the deposit of calcareous matter, and the more abundant deposit of osteoplastes or bone corpuscles. As for these latter, we may again ask ourselves if they are the result of a transformation of the cartilaginous cells or of a substitution. This is a point which histological observation has not been able to clear up, and upon which only suppositions are permissible. You know that I lean toward the theory of substitution.

Let us see what observation has taught us concerning the succession of the phenomena in the different portions of the fracture; and here let us distinguish again between an end-to-end and an overlapping fracture. The observations have always been made upon the end-to-end fracture only. They have formed what I show you here upon this guinea-pig's femur, the lesion of which has reached the sixtieth day; a very large external bony ferrule; a bony mass, a sort of internal ferrule, within the medullary canal, but an intermediate substance between the fragments which is not yet quite ossified, and the greater part of which remains fibro-cartilaginous. In other words, you see here what Dupuytren described under the name *provisional callus*, and Miescher under the name *primitive callus*. By these names these authors wished to indicate that the periosteal and medullary portions of the bony callus were destined in great part to disappear by absorption, and that the true callus was formed by what was left of these and by the bony substance which ultimately formed between the fragments. But there was an exaggeration on the part of these surgeons in the expression of their thought in this way, first, that all is not provisional in the periosteal and medullary calluses, since a part is to remain; and secondly that, as I shall presently explain, the theory given by them as a general one, is not applicable to overriding fractures.

I ask you to notice, in passing, upon this human tibia, in which chance has permitted us to study a callus at the sixty-fifth day, that at the level of, above, and below the fracture, which is not an overlapping one, the compact tissue has become very vascular, very dense, and enlarged; that it offers, in short, the characteristics ascribed by Gerdy to condensing osteitis. When I shall study the clinical phenomena of fractures in detail I shall recur to this habitual intervention of hyperostosis after fractures of the long bones. But here, while studying the question anatomically, I am justified in telling you that the work of consolidation of fractures is dependent upon a modification of the vitality of the fragments which we can ascribe to nothing else than osteitis, and that the variety of osteitis which here intervenes is that which Gerdy named *condensing osteitis*. I go even further. In diaphysary fractures of long bones the intervention of this condensing form of osteitis seems to be necessary. When there is lack of consolidation and pseudarthrosis, rarefying osteitis has intervened. Fortunately that is much more rare, and that is why we so rarely see pseudarthrosis follow simple fracture of the shaft of long bones.

Now let us look at overlapping fractures. We have here an example in the femur of a guinea-pig. I have sawn it longitudinally, and you can see that the new ossification, or, if you prefer, the calcification and production of osteoplastes, have taken place between the two bony surfaces in contact, there where the fibro-cartilaginous callus already existed, but that there is no mention to be made here of a medullary bony callus. It is true that the marrow at the line of the fracture is in great part ossified. But you see that this ossification is of no use to the callus and does not contribute to the consolidation, since that of the upper and that of the lower fragment are not in continuity as they were in the end-to-end fracture.

Nor is there any question of an interfragmentary callus formed by the compact tissue. Consequently, we have no longer to speak of provisional callus and definitive callus. Say, if you please, that the lateral interfragmentary callus is perhaps larger to day than it would have been six or eight months hence. But do not think that Dupuytren's and Miescher's ideas are applicable to cases of this kind, which are the most frequent in man. I have also to point out the same hyperostosis consecutive to the condensing osteitis, as that of which I spoke in end-to-end fractures.

4th period.—For the fourth period, which extends from the sixtieth to the one hundred and twentieth day, and sometimes beyond, I have but few anatomical details to point out: the callus becomes denser and diminishes in size, the medullary canal generally remains filled by the interior ossification, and the shaft of the bone remains a little larger than is normal.

I have further to mention lesions which I can show you only imperfectly in animals, and of which I have at this moment no specimen belonging to man. But we often notice the consequences in the living. I refer to—

1st. Obliteration of the veins;
2d. Synovitis of neighbouring tendons and articulations;
3d. Muscular atrophy.

1st. Obliteration of the large veins near the fracture is quite a common lesion. Are we to explain it by a phlebitis due to the propagation to the interior of the veins of the phlegmasia which arises at the point of fracture, or is it due to simple coagulation of the blood without preceding inflammation of the internal membrane of the vens? The pathological anatomists are still discussing these two theories. As for myself, I hold the first opinion. In most cases, and especially in those in which this lesion occurs in the course of a fracture, I attribute the coagulation of the blood in the veins to a phlebitis by propagation. I even ask myself (but I shall never be able to answer the question by positive facts) if this phlebitis is not due to the passage into the large veins of irritating materials coming from the inflamed marrow or osteomyelitis. But, leaving aside the theoretical question, I point out to you this spontaneous coagulation and the resultant obliteration as the cause of a complication which is not dangerous, but is troublesome and lasts a long time, œdema of the limb about and below the point of fracture.

2d. Synovitis of the tendons and joints is not so frequent in fractures of the shaft as in those of the extremities of the long bones. Nevertheless, after one of the former you often see one of the neighbouring joints inflame and preserve for a long time a more or less painful rigidity, which is explained by the loss of extensibility and of suppleness of the synovial membrane and the connective tissue which lines it. This is particularly common in the knee after fracture of the shaft of the femur, and in the ankle-joint after fracture of the leg.

3d. The muscular atrophy consecutive to fractures which I have studied for several years, and which I made known in a thesis of Dr. Lejeune[1] based upon my lectures at the Hôpital Cochin, and a little later in my work upon *irreductibility and the consecutive deformities of long bones*,[2] is a phenomenon, if not constant, at least very frequent. We often see examples in living patients. The diminution in size of the limbs, the diminution of strength, are easily recognized. In three guinea-pigs whose muscles I here show you, this lesion is very evident. The muscles of the thigh which was broken a few months ago are a little paler and smaller than those of the opposite side. I weighed the muscles of the thighs of one of the animals and found on the healthy side 142 grains, and on the fractured one 117.

Dr. Lejeune weighed separately the muscles of both limbs of a patient who died at the Hôpital Cochin, and found a notable difference in each one.

According to these results, you may consider it an incontestable fact that the muscles diminish in size after a fracture, and I have ascertained that this diminution is permanent, and not temporary.

I have sought[3] for what might be the cause of this slight atrophy, and reached this conclusion, that it should be attributed neither to the compression nor to the immobility, and that it was doubtless due to a change in the distribution of the nutritive materials which is the consequence of the process of consolidation. Not only does the fracture draw towards itself a greater quantity of these materials, but the callus itself, when once formed, and after its completion the hyperostosis, require a greater proportion for their nourishment. This seems to me to be proved by the difference in weight between the fractured and the opposite healthy bone of the same subject. For example, look at these two femurs of a guinea-pig. The right, which was broken forty-three days ago and which is consolidated, weighs 19.8 grains, the left, 15.75 grains. Is it not probable that the right has taken, and would have continued to take, if the animal had lived, more material from the blood, and that consequently there would have been less left for the muscles?

Whatever may be the explanation, the anatomical fact exists and accounts for the persistent weakness so long complained of by patients in limbs which have been broken. I admit that in many patients the diminution of strength is not great, and is scarcely appreciable. That is because the innervation is not affected, and the muscles receive from the nerves a stimulus sufficient to diminish the physiological results of the atrophy. It is no longer the same when the nerves have been wounded at the same time as the bone. There may then be paralysis as well as atrophy, and the functional troubles are much more marked.

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[1] Lejeune, Thèses de Paris, 1858.

[2] Gosselin, Mémoire sur l'Irréductibilité et les Déformations consecutives des Os longs. (Gaz. Hebdomadaire de Méd. et de Chirurgie, Paris 1859.)

[3] Gosselin, loc. cit.

§ 2. Phenomena of Consolidation in the Extremities of Long Bones.

In the extremities of long bones, as in their shafts, we have a first period, called inflammatory, during which the blood and the plastic lymph are effused between the fragments, and at the same time the adjoining connective tissue is swollen for a certain distance above and below the solution of continuity. The beginning of consolidation has not been so well studied here as upon the shaft, for the fractures are so difficult to produce, that experimental study has not been possible, and on the other hand, occasions upon men are rare. We know, however, that the fragments are almost never entirely separated from each other, and that consequently we have not to make a separate study for the end-to-end and for the overlapping fractures. They are almost always end to end, with a more or less marked displacement according to thickness and sometimes according to direction. On the other hand, there is no medullary cavity, and consequently no internal ferrule. The repair is periosteal and interfragmentary, and in this first period, the solution of continuity of the periosteum begins its repair at all the points where its borders are a little separated. But in general the periosteum does not thicken as much as it does on the shaft, and does not form from the beginning this thick ferrule of which we have spoken. No consolidation yet takes place between the fragments; we find there only extravasated blood.

During the second period the new periosteal portion becomes fibro-cartilaginous. At the same time the interfragmentary consolidation commences by the production, probably through the transformation of the exuded lymph, of a fibro-cartilaginous substance. But here several varieties must be pointed out.

In the first, the fragments, composed almost exclusively of cancellous tissue, have not been crushed; they offer neither the reciprocal penetration so well described by M. Voillemier[1] for fracture of the lower extremity of the radius, nor the reduction into small fragments, sometimes into dust, of a portion of this bony tissue which is broken by the mechanism of crushing. In such cases the blood is absorbed, and the fibro-cartilaginous substance, the beginning of the interfragmentary callus, is formed.

In a second variety, which is often found in fractures of the lower extremity of the radius the pieces are in contact, but are reduced by crushing into a certain number of fragments, some of which are very small, almost pulverized. In such cases, especially when there is penetration, the work of consolidation is preceded by the absorption of a part or of the whole of the fragmentary portions. Nothing in the clinical symptoms indicates this absorption, but as, after fractures long consolidated, we find a shortening which cannot be explained by overriding, and which we can attribute only to this absorption, I presume that it takes place during the first few days at the same time as that of the blood infiltrated between the fragments.

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[1] Voillemier, Clinique Chirurgicale, Paris, 1861.

In a third variety, of which the intra-capsular fractures of the neck of the femur and of the humerus give us quite frequent examples, the fragments are in contact but do not penetrate one another; the interposed blood is reabsorbed, and so too is the bone dust. But no intermediate fibro-cartilage is produced, and this absence of the first rudiments of a callus is the indication of non-consolidation which has been pointed out by all the modern authors as frequent in fractures of this kind.

To what cause must we attribute this unfortunate result? It has been claimed to be due to the shortness of the upper fragment, the insufficiency of vessels, and therefore of nutritive materials, in this fragment, and consequently the necessity for the lower fragment to do the whole work of repair, a task which it is unable to perform properly.

I would here say that if this were the only cause, or even the principal one, all fractures of the extremities would be exposed to non-consolidation. Now some of these, those of the lower extremity of the radius for example, consolidate very well.

In those which consolidate rarely I see the intervention of a condition which ought in great part to explain it; I refer to the free communication between the seat of the lesion and the articular cavity, such as exists in intra-capsular fractures of the neck of the femur. I suppose that, as it has been claimed for fractures of the patella, the blood and plastic lymph flow into the articulation, and not enough of the latter remains between the fragments to ultimately produce the fibro-cartilaginous substance.

In the third period, absorption of the pieces goes on if the conditions of the fracture are favourable thereto; the periosteal callus ossifies without becoming thick enough to form a ferrule comparable to that of fracture of the shaft. The interfragmentary callus is completed and assumes a greater and greater importance through the ossification of the fibro-cartilaginous substance, according to the same mechanism, and in the same mysterious conditions which I indicated above. This intermediary callus is often very thick and very resisting, especially at the lower extremity of the radius; but sometimes, and in particular at the neck of the femur, it remains fibrous and more or less dense, almost always dense enough to allow the patient to walk with crutches without inflection or rupture of the callus.

In any case, the capital difference to which I wish to call attention between the callus of the shaft and that of the extremities is that, at the beginning, the former is much more peripheral than interfragmentary; that if it is interfragmentary in overlapping fractures, it is at the same time lateral and periosteal; while the second is interfragmentary in the most rigorous sense of the word, that is, it is formed in great part or in totality by the spongy tissue through which the solution of continuity was made. And the result of this comparative study is to show that all the constituent parts of the bone, spongy tissue, compact tissue, periosteum, contribute to repair fractures of the bone, that even the layers of muscular tissue and the surrounding cellular tissue contribute also to it, and that, finally, the authors erroneously attributed a much too large part to the periosteum in this reparatory function. Furthermore, the same conclusion will be drawn from the study of the consolidation of simple fractures of flat bones and short bones.

In the fourth period, the patients are tormented by the consequences of articular and tendinous synovites, and so much the more so because these fractures being near a joint or synovial grooves, and often even in communication with them, the inflammation has spread to the latter and left behind it the dryness and stiffness which in the joints, characterize plastic. chronic arthritis and dry arthritis. These consequences are so much the more marked and rebellious because the patients affected with these lesions of the extremities are almost always advanced in age, for the predisposing cause of fracture with crushing is rarefaction of the cancellous tissue, rarefaction which, in consequence of inexplicable modifications of nutrition, is a very common consequence of age. Now it is also the case that in old people traumatic arthritis and synovitis, although they do not go on to suppuration, are very slow to end and often pass to that condition of incurability which causes dry arthritis. Finally, muscular atrophy occurs after these fractures as well as after those of the shaft.

§ 3. Anatomical Phenomena in Fractures of the Flat Bones and Short Bones.

I have not much to say on this subject; nature uses the same resources in the consolidation of these two kinds of bone as in that of long bones. The muscles, the periosteum, and the whole fractured surface furnish the materials, and the same ulterior modifications of these materials cause the formation of the callus. But in the flat bones, and especially in those which have no diploë, or only a very thin one, the periosteum is the chief agent where it has been preserved, and it must not be forgotten that if it has been divided, which very commonly happens, it begins by repairing itself, and the material which it supplies to the callus comes as much from its cicatricial portion as from that which remained intact about the fracture. Further, no matter how thin the bone may be at the place of fracture, it can still furnish the materials needed for repair. I had occasion, in 1871, to trepan for intra-cranial suppuration following gunshot fracture of the right parietal bone, a young man twenty-four years old, who was employed in the museum of natural history, and had been brought to the ambulance of that establishment after the battle of Buzenval, where he had been wounded. Not only did he survive the operation, but a bony growth formed all around the opening and advanced towards the centre, so that this sort of flattened callus closed entirely the hole made by the crown of the trepan. Larrey has reported similar cases, in which, as in mine, the calluses were formed during suppurative osteitis, but I wish to mention them here in order to show you once more the power and the multiplicity of means which the organism possesses to repair not only solutions of continuity but also losses of substance in the bone.

LECTURE X.

PHENOMENA OF CONSOLIDATION AFTER COMPOUND SUPPURATING FRACTURES.

1st Variety: Consolidation after benign and superficial suppurating osteitis. 2d Variety: Consolidation after deep osteitis or non-putrid suppurative osteo-myelitis. 3d Variety: Death before consolidation by putrid osteo-myelitis and purulent infection.

GENTLEMEN: Do not lose sight of a first point which is capital in the history of fractures complicated by wounds; they may get well, exactly like simple fractures, but on one condition, which you should always bear in mind when you are called upon to treat such a case, on condition, I repeat, that the bone does not suppurate.

When the broken bone suppurates, and unfortunately all the efforts which you have made and should have made to prevent it do not always succeed, the clinical and anatomical phenomena of consolidation are peculiarly modified, sometimes hindered by this new complication which I shall study especially in the long bones.

Moreover, we have differences depending upon whether the suppurating osteitis occupies the superficies or the entire thickness of the bone, and according to its greater or less intensity. Let me explain these two points.

1. In a first variety, which I call *benign and superficial suppurating osteitis*, the patient has no general symptoms and consequently no fever. The swelling of the limb is moderate, suppuration is established the fourth or the fifth day in the wound itself. The eschars begin to be eliminated, and if you probe the wound gently, you feel the bone denuded superficially. Suppuration becomes a little more abundant after the eighth or ninth day, but the pus is laudable, not fetid, and the apyrexia continues. Things go on in this way for twenty or thirty days; the suppuration continues rather scanty, with no burrowing of the pus, no indication of a deep collection. Mobility of the fragments begins to diminish; in short, except for the superficial suppuration and denudation, the fracture resembles a simple one that has reached this period. But the denudation continues and the fracture goes on to the sixtieth, sixty-fifth day; about the seventieth

day we find it consolidated. Increase of volume can be felt above and below, showing that the osteitis on both sides of the fracture has taken on the condensing form with which we are acquainted. But the fistula persists and the suppuration which it supplies only ends twenty, thirty, or forty days later, after elimination of a splinter or mortified piece comprising a more or less considerable portion of the thickness of the bone. To use the ordinary terms, there has been superficial necrosis, and, after expulsion of the necrosed part, the callus and cicatrix have been completed. The osteitis, instead of remaining plastic over the whole fracture, became suppurative and necrotic in one place, hence the anatomical phenomena which have taken place. In the deep parts of the bone, that is to say, between the fragments, in the medullary canal, and at that portion of the circumference of the bone which is opposite that with which the wound communicates, the osteitis has been plastic, that is, non-suppurative, and the callus has been formed, as in ordinary cases, by effusion and ultimate transformation of the lymph. Adjoining the wound the periosteum has been destroyed by absorption or by mortification; part of the bone has necrosed. Suppuration has taken place about the necrosis without extending to the interfragmentary space. After expulsion of the sequestrum, the suppurating granulations have covered the surface of the bone, and it is in them that have taken place the ulterior transformations, that is, into fibro-cartilage, and then into bone, which have brought about both the reproduction of the periosteum at this point, and the reproduction, sometimes excessive, of the subjacent layer of bone. Here then you see a new element intervene in the formation of the callus, an element which is itself a product of the consecutive inflammation; the granulations, which whilst they suppurate on the surface, ossify below and are transformed into a bone cicatrix, just as they are transformed upon the skin and subjacent tissues, when there is suppuration, into inodular fibrous tissue. The intervention of this new element shows you once more how many assistants the periosteum needs in order that the callus may form under all the conditions where its production becomes necessary.

2. In a second variety, suppuration invades the surface and the depths of the bone, that is to say, the interfragmentary space, the medullary canal, and that portion of the circumference which is furthest from the wound. The osteitis, in a word, has become a general suppurative one, and is no longer partially suppurative as in the other variety. This is the form which we call suppurative osteomyelitis, so as to indicate also the participation of the marrow.

At first the clinical phenomena vary according to the intensity of this osteo-myelitis. If this is moderate, if the osteitis is subacute, the primitive or traumatic fever is not very violent; the pulse does not go beyond 100, 110, nor the temperature in the axilla above 101° to 102°; you do not see the subicteric tint, the delirium, the dryness of the tongue, the tympanism of the abdomen, which announces the dangerous form of traumatic fever. Suppuration begins on the fifth or sixth day in the wound; the pus burrows in the neighbouring tissues. Through the wound and the new openings made by the suppuration, the probe, and sometimes the finger, show that the bone is denuded to a considerable extent above and below the fracture, both about the wound and on the opposite side. The probe penetrates deeply between the fragments and brings out pus. If in order to dress it, you are obliged to move the limb, you see at each movement the liquid escape from the deep parts; furthermore, the suppuration is very abundant. These are so many indications of the presence of suppuration in the depths of the bone, and consequently in the medullary canal.

The case goes on thus for weeks and months unless complications, particularly erysipelas or purulent infection, should intervene. Suppuration continues to be abundant, from time to time slivers of bone are eliminated, the fragments remain movable, repair does not go on, and yet the tumefaction of the bone above and below the fracture indicates that there the osteitis has become condensing, a circumstance which generally augurs well, because, in cases of this kind, the osteitis is reparatory at the same time that it is condensing, that is, the nisus which increases the size of the bone above and below the fracture tends also to repair it.

Finally after a length of time which varies from three to six months, a large callus exists at the seat of the original lesion of the bone. There are still superficial slivers of bone, others, surrounded by new bone, are invaginated; more or less numerous fistulæ lead to these sequestra. In short, the suppurating osteitis has at the same time been hypertrophying and necrotic, as is generally the case in acute suppurating osteitis of youth, and finally, the fracture is really replaced by necrosis consecutive to this osteitis.

How is this callus produced? Very probably by the two mechanisms which we already know; in spite of the intensity and abundance of the suppuration there are perhaps here and there a few points where it has not taken place, and where the plastic exudation has been deposited either by the muscles or by the portions of bone furthest removed from the wound. But in addition, at those points where suppuration takes place without necrosis and elimination, the callus is formed by the granulations themselves, as Sabatier formerly pointed out, and as well by those of the medullary canal and compact tissue as by those of the periosteum. Another proof in support of the opinion that the periosteum is far from being the only agent in the formation of the callus.

3. In a third variety, the osteo-myelitis becomes as intense as possible; it is hyperacute, gives rise to traumatic fever of the most dangerous kind, and is followed, if life is prolonged, by putrefaction of the marrow and periosteum which becomes the point of departure of that other fever which we call purulent infection. But I do not wish to treat to day of putrid osteo-myelitis. I only wish to point it out to you, placing it beside the other forms of suppurating osteitis and the mode of consolidation after their appearance.

LECTURE XI.

FRACTURES OF THE LEG.

Fracture by indirect action at the junction of the middle with the lower third of the leg—Examinations made to recognize it—No appreciable displacement. 1st Variety, Clinical—Mobility, Crepitation—The fracture occupies both bones—Search for the direction—Explanation of the absence of displacement. 2d Variety, Clinical—Indirect fracture with transverse displacement—Examination of these three questions—Why this displacement?—Is it reducible and easily maintained?—What is the cause of the phlyctenæ, and what will they become?—Treatment with the wire splint—Description of Scultet's apparatus, mechanical beds, water bed.

Gentlemen: I. You have just seen in No. 5, a man 32 years old, of habitually good health, who fell yesterday evening in the street, was unable to rise, and was brought to the hospital on a stretcher. He was put to bed and his left leg placed in a wire trough extending a little above the knee. The patient suffered during most of the night, and has slept but little; this morning we find him in the following condition:—

The left leg, compared with the right, is notably larger, without showing either phlyctenæ or redness. Pressing with one finger upon the inner face of the tibia we feel only a little thickening; there is neither ecchymosis nor phlyctenæ. The finger passed along the anterior border and inner face of the bone, finds nowhere any inequality which could be attributed to a displaced fragment. Pressure with this finger causes pain only at the junction of the middle with the lower third of the leg. This pain on pressure in a fixed point, the suffering experienced during the night, the extensive though moderate swelling, taken together with the difficulty of moving the limb, and the patient's inability to get up and walk, are the rational signs of fracture. But you saw that by raising the limb with my two hands, one of which embraced its middle, the other its lower third, and by trying to move the lower part of the limb alternately outwards and inwards with the hand which held it, while the other held the upper two-thirds firmly, I produced an abnormal movement, the centre of which was at the lower part of the shaft of the tibia. I thus demonstrated mobility, and during the same manœuvre I also felt crepitation. We have then no doubt upon the first point of the diagnosis. The patient has a fracture.

But is it only a fracture of the tibia, or are both the bones broken? It is again the mobility which enables us to answer this question. If the tibia alone had been fractured, I should have been able to impress only very obscure movements which would have left me in doubt; to establish my diagnosis I should have had to insist upon the pain on pressure, and to renew the examination for several successive days. I should undoubtedly, after several days, when the swelling and the muscular contractions had diminished, have ended by finding a sufficiently appreciable mobility; perhaps also one day or another, during these examinations, I might have found crepitation. But when the very first day you find a mobility so marked that the hands of the surgeon appreciate it very easily, and that even the assistants can see it, there is no hesitation; it is a simultaneous fracture of the tibia and fibula.

Can I now tell you what is the direction of this fracture, if not in both bones, at least in the more accessible one, and to what anatomo-pathological conditions the absence of displacement is due? Upon these points I am obliged to maintain the greatest reserve. Before Malgaigne's publications we might have thought that it was a transverse fracture; but since Malgaigne[1] has shown positively that fractures of this kind, especially in adults, do not exist, and that the cases which were supposed to be such were toothed fractures, we may believe that we are in presence of a fracture of this kind, and that the non-displacement is explained by the preservation and interlocking of these irregularities. It is probable at the same time that the periosteum and attachments of the muscles are preserved upon a part of the contour of the solution of continuity, and aid to keep the fragments together.

However that may be, you are in presence of the most favourable clinical variety. The patient will get well without deformity, and in all probability will get well rapidly. At least we foresee no circumstance which would retard consolidation.

II. Not far from this patient is another, at No. 15, who was admitted three days ago, and who presents an example of the second clinical variety of fracture of the leg.

He fell, like the preceding one, and was not able to get up or walk. It was the left leg which was injured. The functional and physical symptoms are the same. But in addition, by passing the finger along the anterior border of the tibia we felt at the lower part of the inferior third an abnormal projection which raised and distended the skin and was painful on pressure. Furthermore, there were two quite large phlyctenæ, one of which was filled with yellowish serosity, and the other with sanguinolent serosity, and a few smaller ones. Let us consider for a moment these two particularities.

1st. What is this abnormal projection? It is evidently formed by the upper fragment of the tibia, and is due to the fact that this fragment, pushed forward by the impulsion which was communicated to it at the moment of the accident, is at the same time drawn up and held by the traction of the quadriceps femoris upon the point where the ligamentum patella is attached. This displacement, the most frequent of those which you will see in fractures of the leg, belongs to the category of transverse displacements. When you meet with it, you will ask yourselves two questions: one theoretical, To what is it due? the other essentially practical, Is it reducible?

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[1] Malgaigne, Traité des Fractures, p. 66.

To what is it due? I told you a moment ago that it was due to an impulsion forwards by the cause of the injury, and to the action of the quadriceps femoris. But the anatomical condition which really explains it is the principal direction of the line of fracture. This direction, instead of being nearly horizontal as in the preceding case, represents an oblique direction downwards and forwards, a section so disposed that the upper fragment terminates in a more or less pointed extremity. This disposition has received the name of oblique fracture, and you understand that it is very favourable for the displacement which we see here. It is sufficient that at the time of the accident an impulsion be communicated to this fragment, so that, drawn up by the action of the quadriceps, it forms the projection which you saw.

Are there not, also, in the manner in which the fracture is produced, in its mechanism, as they say, reasons which explain the displacement? I do not think so, or at least if the reasons exist, they escape us entirely. For I learn from the information given by the patient that, as in the preceding case, the fracture was produced without the intervention of any more or less heavy vulnerant body. It is not then a fracture by direct action, but by indirect action. But in fractures of this kind which we are unable, on account of the resistance of the tibia, to reproduce upon the cadaver, the solution of continuity is the result both of irregular muscular actions, some of which tend to give the bone an unusual curve, and the others to twist it, and the pressure of the weight of the body upon this bone, already a little bent and twisted. But it is impossible for us to analyze strictly the muscular phenomena which are produced at the moment of the fall; and as it is also impossible to study them by experiments upon the cadaver and upon living animals, I am unable to tell you how and why, in consequence of this complex intervention of muscular action and the weight of the body, there is obliquity of the fracture and propulsion forwards of the upper fragment of the tibia.

Content yourselves, then, with knowing and remembering this capital fact; the most frequent displacement in fractures of the leg is the one you see here, a transverse displacement in which the extremity of the upper fragment projects forwards.

Let us now consider the practical question: Can this displacement be reduced, and will it be possible for us to keep it reduced, so that the patient may get well without a deformity due to the persistence of a transverse displacement? This problem is in great part solved for this patient. For yesterday I reduced the displacement in the following manner: I raised the leg from the wire splint in which it had been placed the evening before. With one hand I held the upper fragment; with the other, grasping the two malleoli, I drew them downwards, exerting what, in classical language, is called extension. As I felt a little resistance I asked an assistant standing at the end of the bed to help me make extension, grasping the instep with one hand, with the fingers upon the dorsum and the thumb upon the sole of the foot, and the calcaneum with the other. I asked him to draw on the foot while I myself exerted traction with the left hand and made counter extension with the right. The projection having disappeared, we replaced the limb in the trough well lined with cotton; I satisfied myself that the coaptation continued; and, fearing lest in the manœuvre an angular displacement might have been substituted for the transverse one which we had just corrected, I looked to see if the foot was in a good position, drawing an imaginary line from the middle of the first metatarsal bone to the inner border of the patella. When the foot is in a proper position, this line is parallel to the axis of the leg.

As this condition existed, I concluded from it that the reduction had been well made. I asked the patient if he felt any painful pressure on the heel; he said he did not. For greater security I placed a supplementary pad of cotton behind the tendo Achillis above the posterior projection of the calcaneum, so as to diminish pressure on the latter—pressure which is the cause of the severe pain so much complained of by many patients with fracture of the leg. I completed the dressing with a bag filled with oat chaff placed upon the front of the leg, an anterior splint, and some straps with buckles. I examined the leg yesterday and this morning, and found, by passing my finger along the inner face and the anterior border of the tibia, that the fragments were kept in place. I have now no doubt that they will remain so until the end of the treatment. You will then have seen upon this patient one of the most frequent forms of fracture of the leg, that is, fracture with transverse displacement, reducible and easily kept reduced.

3d. What are we to think of the phlyctenæ and of the influence which they may have upon the course of the disease?

In themselves they indicate nothing bad. They are due to a singular modification of nutrition which follows traumatic perturbations. More frequent perhaps when the fracture is direct, they occur also, as you see in this patient, after the intervention of indirect causes. They accompany fractures of the leg much more frequently than those of other parts of the body. Why? It is absolutely impossible for me to tell you.

As to the influence which these phlyctenæ will have upon the course of the disease, I consider it very simple. I cut them open with the scissors, let out the serosity, and placed upon each of them a small piece of perforated linen; and, as the surface of the derm is neither very much bruised nor sloughy, I presume that they will dry promptly, without suppurating, and that in a few days they will be healed.

You will sometimes see phlyctenæ of the leg followed by suppuration of the derm for ten or fifteen days. You may also find under the raised epidermis an eschar, not comprising the whole thickness of the derm, but which nevertheless will have to be eliminated; hence a suppuration which may last long enough to necessitate a special dressing every morning and to oppose the application of the immovable apparatus. This suppuration of phlyctenæ, with or without eschar, is seldom seen except in cases where there has been intervention of a direct cause and more or less violent contusion of the skin.

In short, the prognosis in this patient, as in the other, is favourable in this sense, that the cure will take place without persistent deformity. But it has this disadvantage, that, whatever we may do, the patient will be obliged to keep the bed for about sixty days, walk with crutches for from four to eight weeks, and then with a cane, slowly and limping, for a certain time. The most favoured adults, after a fracture of the leg, do not walk in a perfectly satisfactory manner before the end of four months.[1] Perhaps ours will not be such. Many conditions which we cannot foresee, but which nevertheless may easily intervene, may perhaps ultimately appear. Thus I advance the opinion that the callus will be solid and that mobility will have disappeared after 45 days. But who knows whether in them, as happens from time to time, and without our being able to know very well or foresee the reasons, 60, 75, and even 80 days, instead of 45, may not be necessary to obtain this result? Who knows also whether the tibio-tarsal and tarsal articulations will not remain painful and stiff for many months? I do not think so, because the patients are still young, and are neither gouty nor rheumatic, and because I have no reason to suppose the existence of a fissure extending into the articulation; but, whatever may be the favourable presumptions, you should know that in many cases fracture of the lower third of the leg is followed by an arthritis ending in a semi-anchylosis which long remains rebellious and painful during walking.

You have seen in what the *treatment* has thus far consisted. The leg is kept quiet in the wire trough by means of three canvas bands which are properly tightened and buckled in front over a splint, behind which is a chaff-bag. The foot is also fixed to the sole of the frame by a figure-of-eight bandage, the loops of which surround the apparatus, one opposite the lower part of the leg, the other opposite the foot.

Immobility is assured by means of the mechanical bed which we use for all fractures of the leg and thigh, and even for all painful diseases of the lower limb. The one which we use in the hospital is more simple but a little less convenient than those which we make use of in private practice, and it has the advantage of being easily arranged everywhere, even in the country. It is composed of a rectangular oak frame, the length and breadth of which are the same as those of the mattress. At about 18 inches from the upper end is fastened, by means of a hinge on each side, another smaller frame, intended to hold the pillow, and capable of being fixed at any angle. This smaller frame has but three sides, the one between the two hinges is lacking, and is covered with a stout piece of canvas. The corners of the large frame are furnished with stout hooks, and smaller ones are placed at intervals along the sides, by means of which sheets or strong sailcloth bands, 6 to 8 inches wide, can be fastened upon the frame. Two cords, the four ends of which are attached to the corners of the frame, and a pulley, whose hook receives their loops, complete the apparatus. The upper pulley is attached to the ceiling, or to the frame of the bed in our hospitals.

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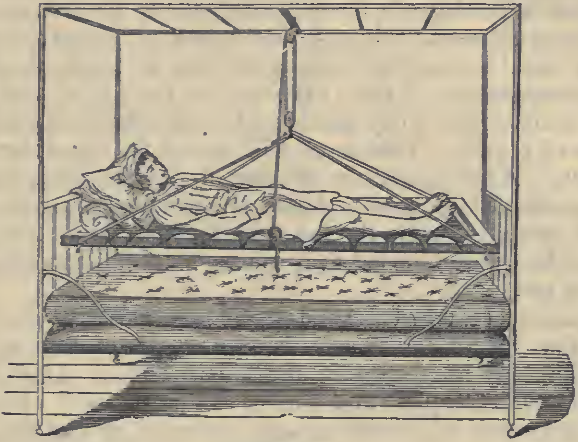
[1] In children consolidation takes place more rapidly. The muscles and articulations resume their functions sooner, so that they have scarcely any need of crutches, and at the end of two months walk quite easily.

Fig. 4.



Hospital Bed.

The patient is placed in the middle of the frame, which has previously been arranged with five or six bands. By means of the small frame his head can be raised for the purpose of eating or drinking, without causing the least sudden movement. If the bands are not properly placed, new ones can be easily substituted by raising the frame a little or by passing them under the patient as he lies, and attaching them to the hooks. By raising the frame with the cord and pulley, the wants of nature can be attended to, proper cleanliness observed, and the bed and bedclothes changed, all without giving the slightest injurious movement to the limb.

As our patients are young and healthy enough to endure without pain the prolonged pressure of the sacrum upon the bed, I do not use the water-bed, which, however, I should make haste to employ if, after a little while, they should complain of pain and sores in that region. I should have recourse to it at once if the patients were weakened by age or by anterior diseases.

The beds occupied by these two patients are in a well-lighted part of the ward. That is a point which should always be seen to. Light is necessary to the maintenance of good health, and good health favours the formation of the callus.

I saw at the Hôtel-Dieu, in 1847 and 1849, two patients who had been lying for six weeks in the darkest part of ward Sainte Marthe, and in whom a fracture of the leg was not at all consolidated. I had these two men placed in better lighted beds in the centre of the ward, and consolidation took place at once.

It is unnecessary to say that the patients will be nourished as well as possible, and that the limb will be examined from time to time to make sure that no displacement has occurred, and, for the one which has the phlyctenæ, to renew the cerate dressing which is applied to them.

In fifteen or twenty days, when the inflammatory period is ended and there is no more swelling, and when the second phase of the affection has begun, during which we have fibro-cartilaginous transformation and the beginning of calcareous deposits in the soft, sanguinolent, and glutinous substance which forms outside the bone and inside the medullary canal during the first period, you will undoubtedly see me change the apparatus: I shall envelop the limb in a layer of cotton, and wrap about it first a dry band and then another soaked in dextrine or silicate of potash. This band will be left in place for twenty or thirty days. When I wish to remove it, I shall place the limb in warm water for half an hour, and then, the bandage being thus softened, take it off carefully, while the leg is held by two assistants, so that no shock may be communicated to it in case consolidation should not be sufficiently advanced.

The bandage removed, I shall see if any mobility remains; it is probable that I shall find none. The rule is that it does not last until the forty-fifth day in fracture of the leg in adults. Does that mean that the callus is complete and perfect at that period? By no means, it only means that it is solid enough to resist the lateral impulsion which one hand gives the lower fragment while the other one holds the upper one immovable. But a few anatomical studies which I have had occasion to make upon fractures at this period in man, and the analogy with that which we find in the bones of animals subjected to experiment, oblige me to admit that, notwithstanding the disappearance of abnormal mobility, the callus is still in part fibro-cartilaginous, and is not so exclusively bony as it will become. These same studies have also taught us that it is only the peripheral periosteal callus which has become solid and partly ossified; but that the interfragmentary callus, so well demonstrated by M. Lambron,[1] is still soft and without admixture of calcareous molecules and bone corpuscles.

Finally, clinical experience has taught us that if the patients now begin to walk, the callus may bend, yield, and an iterative fracture be produced. In a word, the callus will be so solid on the forty-fifth day in both patients that mobility will no longer be felt; but not sufficiently solid to allow us, without danger, to subject it to the trials of walking or even standing. Therefore we shall advise them to remain a fortnight longer in bed, and not to begin to walk with crutches until the sixtieth day. By that time the peripheral callus will have completed its ossification, and the interfragmentary one will have commenced and will be able to continue and complete its own notwithstanding the movements and exercise of the patients. As its ossification advances, the volume of the exterior callus will diminish.

But let us return a moment to the treatment which I have begun and which I propose to continue in both patients. I want you to understand that I might employ many others and obtain an equally good result. You will find in your text-books the description of a certain number of apparatuses for fractures of the leg, and you may even, by consulting a masterly thesis written by Malgaigne,[1] make yourselves acquainted with all the inventions bearing upon this point which have been produced since the days of Hippocrates. They are very numerous; and indeed any one of them might do for our present patients. For when we find ourselves in presence of a fracture with a displacement which it is easy to reduce and keep reduced, all apparatuses are good if they are sufficiently restrictive and if the patient will keep as quiet as possible. You will then be able, in your practice, to employ, instead of this wire trough, one made of tin, gutta-percha, or wood. Above all, you will be able to use the system of short separate bands, called Scultet's apparatus. Its advantage is that it can be constructed everywhere out of materials which are almost always at hand, and which, if necessary, can be replaced by others quite as easily found. Before applying it, it is to be prepared in the following way: —

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[1] Lambron, Etudes sur les Formations du Cal, Paris, 1842.

Arrange upon a table three or four cords parallel to one another, or, better, three or four bands of stout duck or elastic webbing furnished with buckles. Over these place a large napkin or towel; upon this towel you place small bands, three inches in width, whose length is double the circumference of the limb; each band overlaps three-quarters of the breadth of the preceding one. They are to be placed perpendicularly to the axis of the limb, beginning at what is to be the upper end of the apparatus and continuing until you have obtained a length equal to that of the injured limb. Upon these bands, and beginning at the same end, you place doubled compresses five inches wide, each of which covers half the breadth of the preceding one. A splint, as long as the limb, is then placed along each side, and the towel, bands, and compresses rolled over them until they meet in the centre. Thus arranged, the apparatus can be easily transported.

To apply it, the assistant, who makes the extension, raises the foot, drawing it towards himself, while the surgeon, seizing the leg with his left hand (if it is the right leg) above the fracture and with his right hand below, maintains the reduction. Another assistant places the bandage under the limb, and, unrolling the splints, spreads out the apparatus. The limb is then placed carefully in the centre, and, while the assistants keep up extension and counter-extension, the compresses and bands are freely wet with a mixture of two parts of water and one part of camphorated alcohol. The surgeon then takes the lowest compress by one end, while an assistant holds the other, rolls it smoothly over and engages its end under the limb on the opposite side; he then brings over the other end and tucks it under on his own side. He does the same for each compress, one after the other, and then applies the bands in the same way. He then rolls up the outer splint in the towel and places a chaff-bag, an inch thick, between it and the leg; an assistant does the same on the opposite side, and the apparatus is completed by means of an anterior bag upon which is a shorter splint.

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[1] Malgaigne, Sur les Appareils contentifs des Fractures en général (concours de professorat, Paris, 1841), and Gaujet, Arsenal de la Chirurgie contemporaine, Paris, 1867, tome I.

The assistant then holds the three splints in place while the surgeon ties or buckles the straps. He takes care that the heel does not press upon the bed, so as to avoid those intolerable pains which are sometimes caused by continuous pressure of the calcaneum. If this pain occurs the surgeon places a small square cushion under the lower part of the leg so as to raise the heel from the bed. A hoop or cradle protects the leg from the weight of the bedclothes.

Sometimes the point of the foot has a tendency to incline to the right or left. I then fix it in a good position by means of a long compress wrapped about it and fastened on each side to the bed. The foot is in a good position when a line drawn from the patella to the great toe is parallel to the axis of the leg.

I advise you to familiarize yourselves with the construction and application of Scultel's apparatus; for in private practice you will often employ it. But, when you make use of it, do not forget one principal precaution, that of not making it too tight at first. It has been often discussed whether it is better, for fractures in general, to reduce them and apply at once the restrictive apparatus, or to wait until the inflammatory period is ended. That is a question which should not be examined generally; its answer varies according to the regions.

As for fractures of the leg, it is incontestable that the patients feel better and suffer less when the limb is kept in a good position. I advise you then to apply the first day the restrictive apparatus which you may select. But do not forget that the limb will swell, on account of the distant infiltration of the blood which continues to be poured out by the fractured surfaces, and of the serosity exuded during the inflammatory process. Consequently it must not be tightly applied at first, for a slight constriction might be turned into a strangulation by this inevitable increase of volume. Of course, in a limb so well supplied with muscles and whose arteries are so well protected, gangrene is not to be feared, at least in an adult, but the constriction might cause new phlyctenæ, and, above all, it would have the disadvantage of causing the patient to suffer, of preventing sleep. Now, our duty is to avoid causing useless suffering, and, moreover, suffering affects the health.

I told you that to have a regular and prompt consolidation it was necessary that the general health should be troubled as little as possible. With troughs and straps we can easily avoid too much constriction, and if by chance it should be too great, any one can loosen the straps without disarranging the apparatus. With Scultel's apparatus this is not so; when the constriction is painful, it is necessary to await the arrival of the surgeon, and consequently long suffering is needlessly inflicted upon the patient. You will avoid this by not tightening at first, and by renewing the application every day so as to proportion the compression to the increase or diminution of volume.

I have sometimes used Malgaigne's box, or Jules Roux's *planchette polydactyle*.[1] The latter is very convenient, especially if you take care to pad it well with cotton or with a sheet, and if the holes through which the pins are to pass, are numerous enough to furnish, on each side of the foot and leg, sufficient support for the limb.

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[1] A trough pierced with holes through which pegs are passed to press upon the fragments and keep them in position.—Trans.

These apparatuses have the advantage of allowing the surgeon to easily uncover the fractured limb to see what is going on, treat the phlyctenæ, arrange the degree of constriction according to the change in size, and make, if necessary, a new reduction. Among these apparatuses, I may even establish a distinction between those which leave the anterior part of the limb uncovered, and those which allow the fractured point to be seen only after they have been entirely, or in part, removed.

The first, which I also call *open apparatuses*, are the troughs, when they are not closed by means of the anterior splint and strips, Roux's planchette polydactyle, the simple cushion-trough which I have sometimes used, and which consists of a large square cushion, filled with chaff, upon which the leg is placed, and then its sides are turned up and fastened with straps, taking care to leave an open space in front through which the leg can be seen and felt. I might add, as forming part of this category, Maisonneuve's plaster splints. They are made of two pieces of linen, folded in eight thicknesses, and long enough for one of them to pass along the back of the leg and sole of the foot to the ends of the toes, and for the other to encircle the sole of the foot like a stirrup, and pass up each side of the leg as far as the knee. These pieces of linen, dipped in plaster, and folded so as to be two and a half inches wide, are applied to the leg, and kept in place by a roller bandage until they become dry, when the bandage is removed, and three strips of diachylon substituted, one about the foot, the other two about the leg, leaving a part of the anterior face of the leg, and particularly that which corresponds to the fracture, uncovered. This apparatus is very restrictive, but after having used it for more than a year I have given it up, for two reasons: first, because upon patients with a fine and delicate skin, especially women, the diachylon causes an erythema and unpleasant itchings; and secondly, because I have twice seen an eschar produced on the heel, on the most prominent part of the calcaneum.

The second, the *enveloping apparatuses*, are all those which hide the fractured limb from the sight of the surgeon, and allow him to examine it only by removing them in whole or in part. The Scultet apparatus and the roller bandage are types of this variety. The first is much to be preferred, because the limb can be uncovered without raising it, and consequently without giving it any movements which might be painful or might disarrange the position of the fragments or the work of consolidation. The trough, with straps, bag, and anterior splint, belongs to the same category. If I have given it the preference, it is simply because, without spending too much time, I can unbuckle it, remove the splint and the bag, examine the limb, and put everything in place again. But I repeat that if you are willing to give it a little more time, the indication is met as well with the Scultet or any other apparatus, as with that which I now use upon our two patients.

I have already told you that in about three weeks I shall change the apparatus, and substitute an immovable roller bandage, made with a very concentrated solution of silicate of potash. Why this change? It is certainly not that the consolidation may take place more regularly or rapidly. You know what are the anatomo-physiological phenomena which accompany the formation of the callus; you are acquainted with the first period, that which is characterized by the effusion of blood and plastic lymph about and between the fragments, that which almost always, passing beyond the simple needs of repair, gives us, clinically, the inflammatory phase. You know the second period, that which begins between the eighth and thirteenth days, and during which the plastic matter, and perhaps the blood, are transformed into a cellulo-fibrous substance about the fragments and the periosteum. Finally, you know the third period which, beginning from the twelfth to the fifteenth day, and continuing until the end of consolidation, is characterized by the deposit of phosphate of lime and the formation of bone corpuscles in the fibro- cartilaginous substance. Well, these phenomena go on independently of our apparatuses; we apply the latter that the former may follow one another while the limb is fixed in a good position, and that the callus may be as little of a deformity as possible. If we should put on no apparatus, the consolidation would, none the less, take place, provided that the limb was kept nearly immovable, but it would be irregular.

If then we have recourse afterwards to an immovable bandage, it is not to accelerate nor to regulate the callus; in this respect the trough, continued until the forty-fifth day, the Scultet's apparatus, if we had used it, would give exactly the same results. We have no other intention in thus modifying the treatment than to make the patient a little more comfortable. You have often heard me ask patients with broken legs a day or two after the application of an immovable apparatus if they felt more or less comfortable than with the one that had been first applied, and you have heard almost all of them reply that they felt easier because it was lighter, and because the limb, especially the foot, being better immobilized, they can turn and move a little in the bed without causing any pain. It is then because the immovable apparatus is more convenient and more agreeable to the patients that we use it. As for any preference for the silicate of potash, it is not absolute, and nothing would prevent us from using dextrine, simple plaster, or plaster mixed with gelatine, or starch upon linen or paper. It is quite indifferent. The important thing is to know how to well utilize these different substances.

A few years ago I used a good deal, and even now sometimes use plaster or dextrine, which I applied in the following way: —

With the plaster we first make a clear paste by mixing it with water, and then roll a dry band about the limb, previously covered with a thick layer of cotton, while the leg is held by three assistants, two of whom make extension and counter-extension, and the third supports it at the point of fracture. I then roll a band of coarse tarlatan about the limb, beginning at the foot, soaking it in and covering it, as I advance, with the clear plaster paste placed in a basin under the leg. I apply the plaster thus in three superposed layers of tarlatan so as to have a sufficient thickness.

I much prefer this method to that of first applying the plaster to an ordinary band and then rolling it about the limb.

Dextrine is applied as follows: it is not easy to dissolve this substance rapidly in water, and it would require too much time to make a homogeneous glue. In order to obtain it immediately we first mix the dextrine with alcohol, which does not dissolve it, but which gives it the appearance of a fine moist sand, then we slowly add hot water. As the water has a great affinity for the alcohol, it penetrates into all the interstices and dissolves the dextrine at once. The alcohol has the additional advantage of making the solution dry more rapidly.

When the solution is brought to the consistency of a thick syrup, a bandage is unrolled and rolled up again in it so as to be thoroughly impregnated with it. The bands thus prepared may be kept for some time.

The limb is covered with a layer of cotton kept in place by a dry band over which the dextrinated one is applied. When this application is ended, a little of the solution is spread over the outside to fasten the edges down. Bottles of hot water are placed about the leg to hasten the drying, and yet, notwithstanding that, it does not become perfectly solid in less than forty-eight hours.

That is the disadvantage of dextrine: plaster dries too quickly, dextrine too slowly. We possess now an intermediate substance, of which I have spoken—the silicate of potash. The prepared solution is kept for sale. It is obtained by heating to red heat a mixture of one part of powdered quartz with four parts of carbonate of potash. The substance thus obtained is dissolved in water, and evaporated to the consistency of a thick syrup.

It is applied exactly like dextrine, and has the advantage of drying much more rapidly, but the impure article which we sometimes receive dries quite as slowly. At present I use the silicate because it is good, but you would see me return to the dextrine in case I found that the silicate furnished by the administration did not dry rapidly enough.

You might also use plaster with the addition of gelatine, in the proportion of two parts in a thousand of water, as recommended by Prof. Richet. The mixture, which is quite convenient, has, like the silicate of potash, the advantage of drying less rapidly than ordinary plaster, and more rapidly than dextrine.

When you wrap the band soaked in a solidifying mixture about the limb, it is necessary: 1st. To have the limb supported above and below the fracture by two aids, who will make extension and counter-extension; 2d. To make sure that displacement is not produced, an accident which is not probable, since we have reached a period in which the consolidation is sufficiently advanced to prevent the fragments from separating with so much ease; 3d. To see that the foot is so placed that a line drawn from the centre of the inner border of the first metatarsal bone to the inner border of the patella, is parallel to the axis of the leg; 4th. To surround the limb with a layer of cotton, so as to protect it from too much pressure upon certain points; 5th. To tighten it only moderately; the effects of too great constriction would undoubtedly not be so bad as during the first period of the fracture, but yet this excess of constriction might cause pain and oblige the surgeon to remove the apparatus the next day or the day after. Of course it ought to be examined after it has become dry, to see if it threatens to cause excoriation or gangrene of the skin at any point, and to prevent this complication, either by putting some more cotton between that part of the skin and the apparatus, or by cutting away the offending part. These precautions are especially necessary in persons, such as women and children, whose skin is thin and easily irritated or broken.

LECTURE XII.

FRACTURES OF THE LEG—Continued.

Fractures of the leg in the lower third, continued—"V" fractures with displacement which is reducible, but difficult to maintain reduced, and fractures with irreducible displacement (3d and 4th clinical varieties)—Fractures with incomplete perforation of the skin (5th clinical variety).

Gentlemen: I. At No. 26, Ward Sainte-Vierge, is a man 35 years old, of habitual good health, who was brought to us ten days ago with fracture of the lower third of the right leg, caused by a fall down a staircase, but which still seems to have been indirect.

I shall not occupy your time with the question of diagnosis. As in the other cases of which I have had occasion to speak, the diagnosis was easy; inability to walk, pain, swelling during the first few days, mobility, crepitation, left us no doubt of the existence of a fracture of the two bones.

I showed you, from the first, that there was an angular displacement, for the leg described a curve the concavity of which was directed upwards, and a rotatory displacement, for the foot rested on its outer portion, and had turned outwards with the lower fragment. I told you that we had easily corrected these two displacements. But in addition we had the most common variety of transverse displacement, that in which the upper fragment projects in front. You were able to feel the first day, when as yet there was no swelling, that this projection of the upper fragment, instead of terminating in a sharp point corresponding to the crest of the tibia, as is the case in oblique fractures, had its point placed upon the antero-internal face, and at the extremity of two lines of equal length, so that the edge of the upper fragment had the form of a projecting V.

I reduced this displacement, as I did the other two, the first day by the classical manœuvre of reduction, then placed the limb in a wire trough, and completed the dressing with the bag, the anterior splint, and the straps with which you are already acquainted. But when I examined the leg the following morning, I found, that, although the angular and rotatory displacements were not reproduced, the transverse one had reappeared, and that the point of the projecting V exerted quite a strong pressure upon the under surface of the skin. I reduced it again, and then, replacing the limb in the trough without completing the apparatus, I observed what took place. We saw the upper fragment resume almost immediately its vicious position and project under the skin. Again reducing it, I tried to maintain the reduction by means of a layer of cotton and two longitudinal graduated compresses, which I placed along the whole length of the upper fragment from two finger-breadths above the point of the V, so as not to make compression over the point itself. My intention was to distribute a moderate compression all along the upper fragment. Above the graduated compress I placed the bag and anterior splint, which I bound down with three straps about the upper fragment, and one about the lower one. The foot was also fastened to the sole of the trough with a band.

The next morning, by slipping my finger underneath, I felt that the point did not again project, and thence inferred that the displacement had not been reproduced.

But the following morning it was not the same. The projection had again become very notable. I again reduced it, and renewed the compression all along the upper fragment by means of a triple graduated compress and a layer of cotton.

The apparatus has now been five days in place, and the displacement has not reappeared; I therefore hope that it will remain reduced. Of course, if it should reappear after a few days, I should again reduce it, and try to make a more efficacious compression along the upper fragment.

Two peculiarities here require attention: 1st, the V-shape of the upper fragment; 2d, the difficulty of maintaining the reduction.

1st. The V shape of the upper fragment has not in itself a very great importance. But it has the advantage of indicating some anatomo-pathological details of a certain clinical value, which without it we could not suspect.

I have made several autopsies of fractures of this kind while they were quite recent, and found that when the upper fragment showed this projecting V in front, its posterior surface was very irregularly divided, and showed also two lines of fracture forming a re-entrant V with its point directed upwards, that at the same time the inferior fragment presented in front a hollow V corresponding to the projecting one of the upper fragment, and on the posterior surface a point fitting into the re-entrant V of this latter. Hence an irregularity in the main line of fracture, which cannot be included in the anatomo-pathological divisions, heretofore admitted, of transverse and oblique fractures, and which was better described by Gerdy under the name of *toothed or pointed fractures.* It is a curious and inexplicable thing, this irregular and complex direction of the line of fracture in a bone so voluminous as the tibia, and under the influence of the indirect causes which I have had occasion to explain (page 80). But this is not all: when the fragments present this alternation of large V-shaped points and indentations, we find also the marrow considerably bruised, and in the lower fragment a fissure which, starting from the point of the re-entrant V, winds in a spiral about the inner face of the tibia, then the posterior face to the tibio-tarsal articulation, traverses this

Fig. 5.

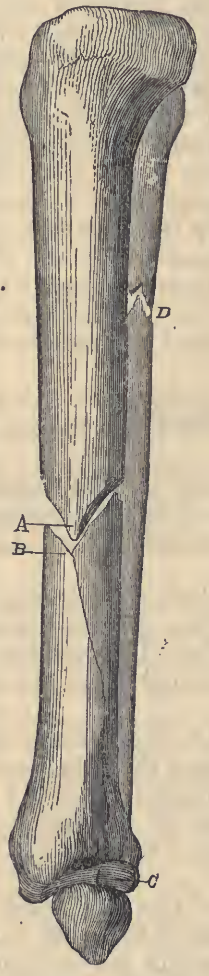

Fig. 6.

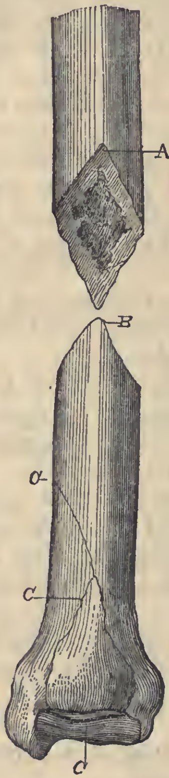

Fig. 7.

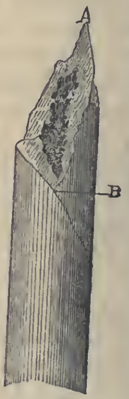

Fig. 5. V-shaped fracture of the right leg, with spiral fissure of the tibia, inner face. A, projecting V of the upper fragment, inner face; B, re-entrant V of the lower fragment and beginning of the fissure; C, articular portion of the fissure; D, concomitant fracture of the fibula.

Fig. 6. V-shaped fracture of the right leg, tibia, posterior face. A, re-entrant V of the upper fragment, seen from behind; B, projecting V of the lower fragment, seen from behind; C C C, fissure, extending to the articulation.

Fig. 7. V-shaped fracture of the right leg, inferior fragment, with its anterior re-entrant and its posterior projecting V; B, origin of the fissure at the angle of the re-entrant V.

articulation near its posterior border, and rises again along the posterior face, thus circumscribing upon it a lamellary fragment.

The first time I saw this long fissural prolongation, causing the seat of the fracture to communicate with the ankle-joint (it was in 1854, at the Hôpital Cochin), I supposed it to be a very uncommon lesion, and although I had occasion to see successively two examples (Figs. 5, 6, 7, 8, 9), which were described in a note[1] and in the thesis of Dr. Bourcy,[2] I could not believe that a fact so curious could, if often met with, have escaped the investigation of surgeons so completely that no author, up to that time, should have spoken of it.

Fig. 8.

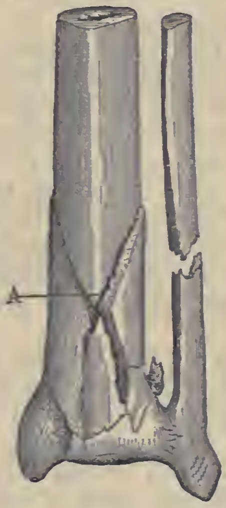

Fig. 9.

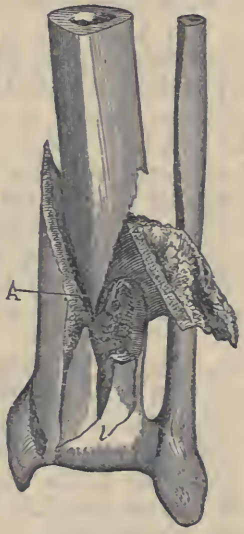

Fig. 8. V-shaped fracture of the leg, with splitting of the inferior fragment of the tibia-pieces in place; A, the V of the upper fragment.
Fig. 9. Same fracture, with the upper fragment replaced in the medullary canal.

But soon new observations collected by my colleagues, especially by MM. Chassaignac, Houel, and H. Larrey, and myself, showed us that indirect fractures of the lower third of the leg very often presented this irregular main line in form of a V, and the long accessory line in form of a fissure, extending to the articulation of the foot, and that consequently it was necessary to admit three principal anatomical varieties of fracture of the leg in the lower third, corresponding to as many clinical varieties: *toothed fracture* (*transverse* of the old authors), *oblique fracture*, and *V fracture.*

I see among our contemporaries a certain tendency to suppress this latter denomination, and to replace it by that of spiroid fracture given by Gerdy to some which, though analogous, differed in many respects, and which he had described for the thigh. For my part, I reject the name spiroid, because it indicates only the secondary lesion, the fissure which cannot be discovered in the living patient by physical signs, while the denomination *V fracture* is based upon the direction of the principal line of the fracture, and indicates a distinction which can be recognized, at least in part, through the skin. We should, however, remember that this name indicates not only a particular form of the principal line of fracture, but also a spiroid fissural prolongation extending to the articulation. It is unfortunate that a single word cannot express these two facts.

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[1] Gosselin, Leçon clinique faite à l'Hôpital Cochin sur les Fractures en V du Tibia, Gaz. des Hôpitaux, 1855, p. 218.

[2] Bourcy, Thèses de Paris, 23 June, 1855.

Before going any further, let us see what relation exists between the V shape and the fissure on the one side, and the V shape and bruising of the marrow, which I have already mentioned, on the other. I believe that I gave, in my earlier publications upon this subject,[1] the only possible explanation, in saying that, in consequence of the absolutely inexplicable direction of the principal line of fracture, the upper fragment exerted, at the very moment of the accident, a pressure like that of a wedge upon the lower fragment, causing it to burst into pieces, and that this same pressure crushed the marrow. I thus extended to fractures of the lower third of the leg, the study of the results of the reciprocal pressure of the fragments immediately after the production of the main line of the fracture, a study which, in other fractures, and notably in those of the lower extremity of the radius and those of the neck of the femur, has given us penetrating fractures.

Let us now return to our patient: he has a V fracture, that is to say, a fracture with crushing of the marrow and fissural prolongation towards the articulation. Now these latter lesions, and even the form of the lower fragment, are not indicated by physical signs, but only by the projection of the upper fragment which we feel through the skin when the swelling has not yet become very great or when it has sufficiently diminished, and by our anatomo-pathological studies which have taught us (the pieces in the Musée Dupuytren prove it) that, in those cases where the upper fragment presented this form, the other lesions mentioned were not lacking. What conclusions should we draw from these notions with reference to the ultimate course and prognosis of the fracture? The patient will have a tibio-tarsal arthritis, and this arthritis will leave behind it for a longer or shorter time a semi-anchylosis or stiffness. Unquestionably this is not a coincidence which belongs exclusively to V fractures, for we often see the articulation inflame by simple proximity, but that which is possible in other cases is almost inevitable in those where the fracture extends to the articulation. As to the subsequent stiffness and difficulty in walking which it occasions, I should fear its long duration if the patient was a little older or subject to rheumatism or gout, for, as I have often told you, the duration of this painful stiffness and loss of function following spontaneous arthritis and long immobility depends upon the age. The older the patient, the longer the duration.

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[1] Gosselin, Mémoires de la Société de Chirurgie, tome v. 1855; and Bulletin de la Société de Chirurgie, tome vi. p. 262, 1855; tome ix. p. 148.

We draw from the above-mentioned notions this other conclusion, that the patient is a little more exposed than others to suppurating osteo-myelitis.

Upon this point I was led into an error by a singular chance at the beginning of my labours upon this subject. My first two patients affected with V fracture had, the one a compound fracture, the other a simple one, and both died of purulent infection following suppurative osteo-myelitis. I did not infer that all those who should have V fractures without communicating wounds would have suppurative osteo-myelitis, but I concluded that they were exposed to it in a certain measure.

Since then I, as well as others, have often seen simple fractures of this kind which were not complicated either by suppuration of the marrow or by purulent infection.

I say to you then, our patient, because he has a V fracture, and with it a crushing of the marrow, is more predisposed than others to an osteo-myelitis. But as there is no external wound, the suppuration of which might extend to the fracture, it is more than probable that he will escape this dangerous complication and will get well.

2d. I now come to this displacement, which is reducible and difficult to keep reduced. To what is it due? To this, that at the moment of the accident and of the wedge-like action by vertical pressure and rotation of the upper fragment upon the lower one, extensive ruptures were caused about the first. Not only was the periosteum divided, but the muscles were extensively torn at the moment of the great muscular effort during which the bone was broken and acted like a wedge upon the lower fragment. Freed from all its connections, this upper fragment is easily drawn upwards by the action of the quadriceps femoris, and it is only by means of a considerable and constant pressure that we can keep it in place.

But what disadvantage would there be if we paid no attention to this displacement and did not correct it? First, its point might perforate the skin immediately or after the formation of a small eschar by its pressure, which would change the simple fracture into a compound one, and would expose the patient to the tedium and dangers of a consolidation after suppuration. Secondly, supposing that this unfortunate complication should be avoided, the patient would get well more slowly because the callus would be made by only a part of the contour of the fragments, that by which they touched one another, and all the materials poured out by the rest of the contour or between the fragments would not be utilized. Finally, the callus would be irregular in two ways, because an abnormal projection would persist indefinitely, and because the persistence of the transverse displacement would cause longitudinal displacement and a permanent shortening of the leg.

I know that in such cases it is more important to attend to the function than to the shape, and that notwithstanding the irregularities of which I speak, the limb would recover its usefulness in walking and standing. Nevertheless, patients, especially women, are always dissatisfied with being deformed, and if we do not wish to be accused of negligence or incapacity, we should make every effort to obtain a cure of fracture of the leg with a callus as little irregular as possible.

What means are at our disposal to correct this tendency to displacement? It is evident that ordinary restriction by the apparatuses with which you are acquainted is insufficient, and that it is necessary to add something to them.

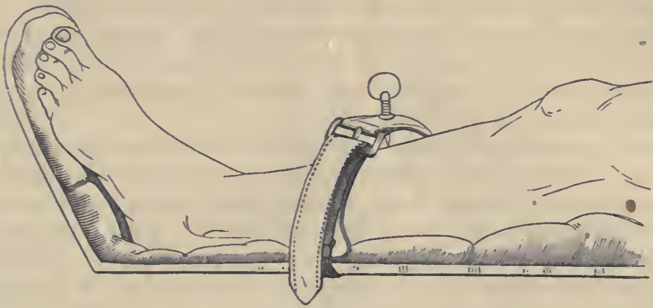
I told you what I did for our patient: compression all along the upper fragment except at the point where it might cause an eschar. Take care not to yield to the idea which at first presents itself of compressing the extremity itself of this displaced fragment by means of a cushion and a small splint. If you should do that you would run great risk of causing mortification. For the skin would be compressed at this point between the fragment which tends constantly to be drawn outwards, and the accessory apparatus which would press it backwards. It would be better, as I said, to distribute the compression above the point of the V, than to concentrate it at that point. It is, furthermore, necessary to tighten it a little more than usual, and relax it if the patient suffers. You remember that the limb has been attentively watched, and that I have renewed the reduction whenever the displacement has been reproduced. I do not advise you to have recourse in cases of this kind to the Scultet apparatus, because in order to make compression efficaciously along the whole length of the upper fragment it is well that the limb should rest upon a hard plane, and because it is indispensable to examine the fracture once or twice every day, and to repeat the reduction if necessary. Now it is not easy to make up your mind to open so often a complicated Scultet dressing; it is much easier with the trough, or Malgaigne's box, or Roux's polydactylic box. You understand, also, how necessary it is in such cases not to withdraw the limb from observation by enveloping it in an immovable bandage. The fracture should be constantly examined until at least the 25th day, that is to say, until the time when consolidation is so far advanced that, even if it should seem necessary, reduction could no longer be made.

Compression, such as you see me apply, is not the only means which we possess. We might use in this case Malgaigne's point, which consists of a metal rod attached to a steel hoop through which it can be raised and lowered by means of a screw.

I have twice used Malgaigne's point for fractures similar to this one. In one of them the final result was very good, but was obtained at the price of quite severe pain. In the second, the patient complained of violent pains which obliged him constantly to loosen the screw, and finally he had an erysipelas, of which he got well, but which caused the treatment to be suspended. In short, I find that compression is preferable because it is less painful and can produce the desired result without any lesion of the skin, and I should use Malgaigne's method only in case this compression did not prevent displacement.

I advise you also to accustom yourselves to do without these special apparatuses. The fractures for which they can be used are not frequent, and when they are met with, these apparatuses are not always at hand or are in bad condition, as are always those instruments of which we do not make daily use. Keep them, if you choose, for hospital practice and the large cities, but in ordinary practice use the means which are always at hand, such as cotton wadding, oakum if you have no cotton, or pieces of linen folded into long and narrow compresses.

Fig. 10.



II. *Fracture with irreducible transverse displacement.*—At No. 45, there is another variety of fracture in the lower third of the left leg, which we have had under observation for a fortnight. It is in a rather young and vigorous man who fell while running, and in whom we have no reason to believe in the intervention of a direct cause.

Since the first day we have recognized the projection of the upper fragment and its V shape; but it was in vain that I tried to make it disappear by executing the manœuvres of extension, counter-extension, and coaptation; I did not succeed; I applied poultices for three days, gave opium, and left the limb untouched, hoping that perhaps reduction was prevented by spasmodic muscular contraction, and that this contraction would disappear with time. The fourth, fifth, and sixth days I failed as on the first. I succeeded in diminishing the projection by means of the compression mentioned in the preceding case, without causing an eschar; but I did not get complete reduction, and I am obliged to recognize that I am in the presence of one of those irreducible displacements which our predecessors did not describe. For in all the books which preceded Malgaigne's, reduction of fractures is spoken of as a very simple thing, which is always easy and never meets with obstacles. Now the case before us, the examples of which, fortunately, are not very frequent, shows you that it is not always so.

Can we at least explain this irreducibility? I might be permitted to attribute it to muscular action which, the transverse displacement once produced, had caused the over riding, and had been too strong to yield to the attempts at reduction. But it is very rarely and with much difficulty that the upper fragment entirely abandons the lower one. On account of the breadth of the bone and the irregularity of the fracture, the fragments always touch at some points, and muscular action does not produce so much overlapping that our efforts at extension cannot overcome it. Moreover, experience has shown us that in fractures of the leg longitudinal displacement, which is always the result of muscular contraction, can most often be easily corrected.

In these exceptional cases where reduction cannot be obtained, I think it ought to be attributed to some obstacle offered either by a strip of muscle or by a splinter or piece of bone, which has slipped into the place of the upper fragment.

We can never demonstrate materially either in our present patient or in those of the same kind which we meet from time to time, the interposition of a foreign body between the fragments; but as autopsies of recent fractures have demonstrated it sometimes, we have a right to believe in its existence in irreducible cases. I have in my collection a specimen which came from a woman in the Hôpital de la Pitié, who had a compound fracture, the upper fragment of which I was unable to bring into place. This was due to a large muscular bundle of the tibialis posticus which had caught upon the end of the lower fragment and occupied the place of the upper one.

I have often met also with splinters of bone placed crosswise in the inter-fragmentary space, and I have found them especially in V fractures. For the result of the splitting and rotating action of the upper fragment upon the lower is sometimes that one of the sides of the lower or hollow V breaks, and the fragment, drawn by the muscular fibres attached to it, or in consequence of an impulsion communicated to it by the lower fragment, or of some outside pressure, leans towards the inter-fragmentary space and is caught in it so as to oppose reduction. What happens with one of the sides of the hollow V may also happen with some detached point or with several, and thus, instead of one, we have several obstacles to reduction.

I repeat that I do not know what is the obstacle in this case; but I presume, from what I have seen in the cadaver, and from the full V shape of the upper fragment, that reduction is prevented by a cause of this kind, and that it would be impossible to reduce it completely.

We shall then expect to see this patient get well slowly and with a deformed callus, which will, however, in no way affect the functions of the limb. I shall forewarn the patient of this result.

Let us also meet the indication of pushing back this fragment as far as possible towards its proper place, so as to avoid an eschar over the point, and render the deformity as slight as possible.

For that purpose we apply graduated compresses all along the upper fragment. This would be a suitable case for Malgaigne's point[1] if we preferred it. But although this eminent surgeon claimed that his apparatus was almost infallible, you may be sure, that in a case of this kind, it would not have succeeded in removing the deformity entirely.

In any case, remember this fact, that although our classical authors have represented fractures of the leg as always susceptible of reduction, it must be admitted that some are irreducible, and that the consecutive deformities are due to the circumstances of the fracture and not to the carelessness of the surgeons. I treated this subject fully in 1859.[1]

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[1] Malgaigne, Traité des fractures et luxations, Paris, 1847–1854.

III. *Fracture of the lower third of the leg with transverse displacement and projection forwards of the lower fragment.*—I do not wish, gentlemen, to describe fully all the varieties of fracture of the leg; but let me tell you, in passing, that if displacement of the upper fragment is the one which is the most often observed, you will also see in some rarer cases transverse displacement of the lower fragment forwards.

We have an example in the woman who occupies No. 10. At the time of her admission there was a notable projection of the lower fragment which I was able to reduce and keep reduced.

But you will also meet with patients in whom reduction and retention are difficult. That may be explained in the same way as the irreducibility of the upper fragment, by a peculiar interlocking, or by the interposition of a splinter or piece of muscle. But we must also attribute it in part to the action of the gastrocnemius and soleus, which, drawing the calcaneum and lower fragment upwards, keep the broken end of the latter in front of the upper fragment.

I do not know what causes this kind of displacement; in any case, it does not coincide with a V fracture, and is found in certain toothed and oblique ones. The prognosis and treatment present no peculiarity.

IV. *Fracture with very prominent angular displacement forwards.*—Notice also the patient in No. 26, in whom, on the day of his admission, we found a fracture in the lower third of the two bones of the left leg with a very prominent angular projection in front (angular displacement). Lateral angular projection is not very rare, it is easily corrected, and rarely reproduced. But the same is not true of angular displacement with prominence in front; it is easily corrected, but has a great tendency to reappear, and the surgeon should struggle against this tendency so long as the callus is not sufficiently strong to oppose its reproduction.

I make the reduction in this case very easily every morning, and compress with a cushion and anterior splint as well as possible. The next morning I find a little of the projection which I had effaced so well the day before, and I am obliged to make a new reduction.

This is another of those cases in which it is necessary to examine the limb every day, and to correct the deformity as often as possible. Be careful in such circumstances not to apply the immovable apparatus too soon, for if the callus has not already acquired a certain solidity when you inclose the limb, the angular projection will be reproduced little by little under the apparatus without your perceiving it, and when you remove the bandage you will find the leg solid but very irregular, with an angular callus which will shorten it very much, and compel the patient to walk upon his toes and to wear a shoe with a very high heel.

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[1] Gosselin. Sur l'Irréductibilité et les Déformations consécutives dans les Fractures des Os longs. (Gazette hebdomadaire, t. vi. p. 130.)

I shall undoubtedly not apply the silicated apparatus before the thirtieth day, and even if I then find marked mobility I shall not apply it at all, and shall continue to use the ordinary apparatus, examining it often, until the end of the treatment.

I have not thus far spoken of section of the tendo Achillis as part of the treatment of fractures of the leg with displacement difficult to correct, because this operation, proposed long ago by Laugier, seems to me useless in the transverse displacements to which I have called your attention. For of two things, one: either these displacements can be reduced and maintained by the aid of the measures which I have mentioned, in which case tenotomy would only add to the consecutive muscular weakness of the limb; or the displacement cannot be corrected, which is due, as I have told you, rather to certain peculiarities of the fracture than to contraction of the gastrocnemius; tenotomy, therefore, would be useless.

But in angular displacements forward which are so easily reproduced, it is allowable to think that the contraction of this muscle has a great influence, and that consequently division of the tendo Achillis by temporarily suppressing the cause would also suppress the effect. But I can support by no personal experience the advantages of this operation, for I have had no occasion to perform it, and the examples published by Laugier, who, according to Malgaigne, introduced this modification of the treatment, and by M. Meynier d'Ornans, are not numerous enough to bring conviction.

In a word, the procedure is not generalized in practice; is it because it has not been considered good, or because the particular class of cases to which it is appropriate, the one which now occupies us, has not been clearly indicated? I do not know; but it is for this reason, and also because I expect to succeed without it, that I have not had recourse to it. On one occasion, however, I keenly regretted not having employed it, for, notwithstanding all my care, my patient got well with an infirmity and a shortening which tenotomy would undoubtedly have avoided.

V. *Fracture with engagement of the point of the fragment in the thickness of the skin.*—Finally, gentlemen, I wish you to notice, in passing, the patient in No. 7, who presents a singular fracture of the tibia.

The point of the upper fragment is implanted in front in the under portion of the skin, that is to say, has *spitted* it without traversing its entire thickness. This case establishes the transition between fractures without wound and fractures with wound. You saw that I tried at once to withdraw the bony point from the skin, and in this case I succeeded quite easily with my hands alone and by the ordinary manœuvres of reduction.

It is not always so, and once I had to draw the skin downwards with a double hook implanted on the sides of the point.

In another case all my efforts to disengage the point were unsuccessful. I then treated the fracture without occupying myself any further with this incident, and had the satisfaction of seeing that little by little the depression of the skin diminished; at the end of the treatment it was no longer adherent, the point had been reduced spontaneously. Remember this peculiarity if ever you have to treat a case of this kind. Try to disengage the point, and if you do not succeed, treat your patient as for an ordinary fracture.

LECTURE XIII.

COMPOUND FRACTURES OF THE LOWER THIRD OF THE LEG.

I. Small wound. Diagnosis completed by the flow of blood and drops of oil. Possible termination without suppuration. After mild suppurating osteitis, and necrosis. After putrid and infecting osteo-myelitis. Importance of occlusion. Methods of practising it. Imbricated strips of diachylon plaster. Bands dipped in collodion. II. Large wound. Suppuration more difficult to avoid.

GENTLEMEN: We visited this morning, at No. 41, a man about 40 years old, who broke his left leg by a fall upon the ice. When he was picked up his stocking was found to be wet with blood; and after we had undressed him, and cut off this stocking, we found at the anterior portion of the leg, near the junction of the lower and middle thirds, a wound nearly half an inch long, through which a bony point projected slightly. Blood, mixed with drops of oil, flowed from the wound. There is also an abnormal mobility which leaves no doubt as to the existence of a fracture of both bones. But this fracture is complicated by a small wound with issue of the upper fragment.

This patient reminds you of two others whom we have seen during the year, and in whom you did not have the opportunity of seeing the projection of the upper fragment. In one of them the reduction had been made by the interne on duty the evening before our first visit. In the other the dressing was also made in the evening. The interne had not found the bone projecting, but as he saw a considerable quantity of blood escaping, and as by passing a probe carefully into the wound, he felt the denuded extremity of the fragment, he was convinced, and I shared the conviction, that the wound communicated with the fracture. But had this wound been made, like the two preceding ones, from within outwards by the fragment itself, or, on the contrary, from without inwards by some external vulnerant body? There we had to deal only with probabilities, and it is so in most cases of this kind; certainty almost never exists. The probability that the bone was the vulnerant body is based upon the narrowness of the wound, and the absence of a severe contusion, such as would have been produced by a blow. Still, this question is not of capital importance. The wound was not quite half an inch long, its edges were not bruised, and its condition was favourable for immediate union, which is the essential point. Let us here recall the case of another patient.

Toward the end of last year I called your attention to a patient, who, with a fracture, probably toothed, at the junction of the middle and lower thirds of the leg, had on the anterior and outer portion of the limb a wound through which no one had seen a fragment project, and through which a probe, passed with all the precautions indicated in such a case, had not reached the fragments or the intervals between them. Was the wound in communication with the fracture, or was it independent? We had two reasons to think that it communicated: the first was that from the information furnished us, and from the quantity of blood that had soaked into the dressing during the fifteen hours that had elapsed between the patient's admission to the hospital and our visit, we saw that the wound, although small, had bled a great deal, but without the interrupted spirt and the bright colour which characterize arterial hemorrhage. Wounds occupying the soft parts do not bleed so freely and for so long a time, unless an artery is wounded, and that, I repeat, is not the case here. On the other hand, when the wounds communicate with a fracture the fragments always furnish a large quantity of blood which comes from the capillaries of the periosteum, from the bone itself, from the marrow, and from the nutrient arteries. It is this abundance of blood which causes the effusions and infiltrations of the first days, the extensive ecchymoses which you see increase during the first two or three weeks, and which disappear so slowly.

The second reason for believing in the communication was the presence of drops of oil in the blood which flowed the first day. I admit that this is not a pathognomonic sign; I know, and I should warn you that the fat of the subcutaneous cellular tissue can supply drops of oil to the blood of a recent wound interesting only the soft parts; but these drops appear only in small quantity and for a short time, especially when the wound is small. On the other hand, the marrow of the bone, the fat of which is more liquid, furnishes more and for a longer time when it has been torn. That is why the appearance of oily drops in the blood of small wounds coinciding with a fracture, ten, twelve, or fifteen hours after the accident, is a strong presumption in favor of the opinion that the fracture is compound, that the wound communicates with it. When the flow of blood is moderate, and the oily drops are not found, we have to remain in doubt, and incline towards the opinion which involves the treatment most favourable to the patient. Admit, in such a case, communication, rather than not. There is no disadvantage, if the wound is independent, in treating it as if it communicated, and there are very great ones in treating it as independent if by chance it communicates.

But to return to our patient: I reduced the fracture very easily, and was able to replace the point of the upper fragment which is on the anterior border, and does not indicate a V fracture. Here, then, is a patient with a nearly transverse wound one-quarter of an inch long, about which the skin is probably loosened for a certain distance, and which communicates with the seat of the fracture, a sort of accidental cavity limited by the fragments, and filled with liquid and coagulated blood. What would happen if we should leave the wound in the state in which it now is, and occupy ourselves only with the ordinary treatment of the fracture? One of the four following things:—

Either the wound, being narrow and but slightly bruised, would heal promptly and without suppuration. In three or four days the fracture would be no longer *exposed*, and would advance to a cure like any other simple fracture.

Or the wound would not heal by first intention; it would suppurate, but the suppuration would be limited to its edges and would not extend inwards to the seat of the fracture, the deeper layers of the soft parts having united immediately and opposed a barrier to the extension of the suppuration towards the deep parts. In this case the fracture would also heal like a simple one.

Or the suppurative inflammation starting from the wound, immediate union of which had not taken place, would extend further and further towards the seat of the fracture, that is to say, to the bones, and especially the tibia, whose greater size renders its suppuration more important and more dangerous; the suppurative inflammation would invade, in all probability, all the constituent parts of the bone; periosteum, compact substance, and medullary substance. In a word, osteitis would supervene, or rather—uncomplicated, mild, suppurating osteo-myelitis of acute or subacute form; we should have as local symptoms of this disease:—

1st. During the first few days a diffuse and painful swelling of the limb, and the development of a more or less intense fever which we have called, since Dupuytren,[1] *traumatic fever.*

2d. A little later, and for a long time, an abundant suppuration following subcutaneous or intermuscular diffuse phlegmons, a necrosis keeping up fistulæ until elimination of the mortified parts has taken place, and finally cure with one of those more or less considerable hyperostoses, of which I shall have occasion to show you examples.

Or finally, the suppurative inflammation extending to the bones would there take on the form which I call putrid or infecting osteo-myelitis, which differs from the preceding one by two capital characteristics:—

1st. By the formation of eschars and the putrid decomposition of the blood upon the soft parts of the wound, and especially by the gangrene and the decomposition of the medullary substance and the extravasated blood in the medullary canal, and in all the canaliculi which have been opened by the solution of continuity.

2d. By the coincidence, with this putrid decomposition, of an intense fever during the first few days, with a pulse of 120 or 130, and an axillary temperature of 104°, headache, thirst, sometimes delirium, and, later, purulent infection.

Do not forget, gentlemen, that by the very fact that a patient is exposed to suppuration of the bone, he is exposed to this putrid and malignant variety of acute osteitis and the consequences I mentioned, especially to death by purulent infection, which happens more often than death by traumatic fever, the latter being really primitive putrid infection, while the other is consecutive or secondary putrid infection, and the hecticity, which sometimes occurs still later, may be considered as a tertiary putrid or septic infection.

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[1] Dupuytren, Leçons orales, tome vi.

But perhaps you would ask me the following question: If this man is threatened with an acute suppuration of the bones, have you any reasons for hoping that this suppuration will take on the mild rather than the malignant form, or for believing rather in the development of the latter, and of one of the varieties of dangerous septicæmia which you attribute to it? I can reply only with presumptions.

If the patient was in the country, if he was not in a hospital, if I was sure that he was not given to drink, I would reply: Yes, his wound, in itself, exposes him to acute suppurating osteo-myelitis, but there are, in the circumstances mentioned, reasons for hoping that this suppuration will not take place, or that, if it does, it will remain simple and mild, or, if you prefer, non-putrid and non-infecting. But, on the one hand, the atmospherical conditions in which he now finds himself, and on the other, his previous life in a great city, his exhaustion by fatiguing labour, his alcoholic habits, his present position in a ward charged with nosocomial emanations, are so many unfavourable circumstances which predispose him to suppuration of the bone and to the putrid and gangrenous form of this suppuration. It is true, that this predisposition exists only in a certain measure, and I cannot tell you just what that measure is. For above all these causes one other is needed which is purely individual, and which is inherent to the constitution and to its aptitudes. Multiple as are the causes of which I have spoken, it may be, nevertheless, that the constitution does not favour suppuration of the bone and especially putrid suppuration. On the other hand, moderate as may be all the occasional causes, the constitution may be one of those which engender pus and putridity easily, notwithstanding all that is done to prevent, and it is because we are in the most absolute ignorance upon these individual aptitudes which annihilate or fortify the action of all the other causes, that I cannot say what will happen. I tell you what is possible, but I cannot tell you in what degree it is possible.

The only thing which I wish to fix in your minds is that a wound, even a small one, which complicates a fracture of the leg, exposes it to suppuration and all its possible consequences; dangerous traumatic fever, suppurative, acute osteo-myelitis, purulent infection, hecticity, or necrosis, and slow cure with a deformed and painful callus.

But there is one circumstance which diminishes the gravity of the prognosis in the case of our patient. All that I have just said is under the inexact supposition that we should not try to do anything for the wound. But, on the contrary, we shall treat it with great care, and I hope that our efforts will meet with success, and that we shall prevent suppuration of the bones and its consequences. I have the more reason to expect this result because the wound is small, its edges are not bruised, and there are no eschars to be eliminated. Under such conditions I have every reason to hope for immediate union and a cure without suppuration.

The means by which to obtain it are very simple, and yet it is only within the last twenty years that they have been well understood, formulated, and applied.

The surgeons of the seventeenth and eighteenth centuries advised, it is true, that the wound should be closed by means of agglutinatives, but they devoted themselves above all to the reduction of the fracture, as Boyer's article on compound fractures[1] will show you. They thought little about the wound, they indicated neither the mode of application nor the length of time during which the agglutinatives should be kept on, and, furthermore, they possessed only insufficient ones which softened in contact with the blood and became loose the first or second day after their application, and did not keep the edges together long enough to prevent suppuration. Consequently the surgeons of the beginning of the nineteenth century did not comprehend the precept sufficiently to apply it vigorously. Led away by the ideas which ruled at that time about inflammation, they tried to moderate it by various topical applications, hoping thereby to prevent it from becoming suppurative. Poultices, leeches upon the injured limb, systemic bleeding, diet, in a word all that constituted antiphlogistic treatment, was recommended, and the dressing of the wound was made of secondary importance, consisting in the application of a piece of diachylon or court-plaster, which met only temporarily and incompletely the main indication, that of keeping the edges of the solution of continuity together, and protecting them as long as possible from contact with the air.

It was still with the hope of moderating the inflammation that A. Bérard, Breschet, and many others after them, had recourse to continuous irrigations of cold water, and Baudens to refrigeration by means of ice. Undoubtedly they sometimes succeeded with these means when the wound was a small one; but they often failed, while, on the contrary, with the dressings which we have at our disposal to-day, success, that is to say, non-suppuration, is the rule, and failure the exception.

To M. Chassaignac[2] belongs the merit of distinctly formulating this surgical point under the name of *occludent dressing*. This dressing consisted, when its author recommended it, of small strips of diachylon overlapping and crossing one another over the wound, the edges of which had previously been brought as well together as possible. He placed several layers, one over the other, so as to form a sort of cuirass, and left it all in place for ten or twelve days.

But the occludent dressing has been singularly improved by the use of collodion. With this substance we make an apparatus which dries rapidly and remains firmly attached to the skin without becoming soft or wet by contact with organic liquids. The pieces may easily be left in place for the necessary time, six, eight, and even ten days.

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[1] Boyer, tome iii., 1st edition, p. 68.

[2] Chassaignac. Des Opérations applicables aux Fractures compliquées de Plaie. Thèse de Concours pour la Chaire d'Opérations et Appareils, Paris, 1850, and Traité de la Suppuration et du Drainage, tome i. p. 514.

By its exact application and adhesion collodion gives a first and very important result. It protects the wound and the rest of the fracture from contact with the air, the presence of which leads so easily to decomposition of the blood and exuded products, an alteration which inevitably causes suppuration. It satisfies two other capital conditions, that of keeping the edges as exactly together as possible, and that of immobilizing them by preventing any slipping or folding of the skin.

For we have to obtain permanent reunion as well as occlusion, in order to reach the great result which we seek.

We have to choose between two methods of applying the collodion.

The first consists in cutting a certain number of strips of linen, half an inch wide and from two to three inches long, and in dipping each one successively in a mixture of collodion and castor oil, the so-called elastic collodion, which is less irritating than the ordinary collodion. The leg being well placed in the trough or fracture-box where it is to remain, an assistant brings with two fingers the edges of the wound together, and while he holds them in contact the surgeon applies the first collodionized strip. He places a second over the first in the form of an X, then a third parallel to and covering about two-thirds of the first, a fourth parallel to the second, and so on, so as to cover the wound itself and about an inch of the surrounding parts with a sort of collodionized cuirass. When the dressing is completed the strips are very tightly applied, close the wound, and confine the skin all around it.

The second method consists in covering a piece of goldbeater's skin about an inch and a half in diameter with collodion, sticking it upon the wound, and placing a second over the first.

I have used both methods and prefer the first. The separate bands are better than the goldbeater's skin, for the latter sometimes leaves a gap which might favour the displacement of the edges of the wound, and it compels the use of a larger quantity of collodion, which sometimes causes phlyctenæ.

I applied upon our patient the collodionized and imbricated strips of linen, after having satisfied myself again that reunion had been well made, and I completed the dressing with the anterior splint, cushion, and straps. I placed him upon the mechanical bed, and I advised him, even more strongly than usual, to avoid every kind of movement. During the following days I shall examine the leg, press upon the cuirass to see if this pressure causes a pain which might indicate inflammation, or if it causes the issue of a few drops of sanguinolent or purulent serosity. If, as is very probable, I find neither pain nor oozing, I shall leave the dressing in place for ten days; at the end of that time I shall remove it, and I can tell you beforehand that the little wound will be cicatrized, and that the fracture, transformed into a simple one, will heal after the usual lapse of time. During the last four years I have used this dressing a dozen times in cases where, as in this one, the wound was not very much contused and was not half an inch long, and in no case did suppuration of the bone ensue.

Consider it then as certain that this mode of treatment is superior to any other, and relieves you from having to make use of antiphlogistics, continuous irrigation, and ice, the success of which is much less probable.

While speaking of these recent small wounds which heal under the occludent dressing, I wish to remind you of a patient whom you saw a few months ago in our wards. He was a man 30 years old, who, in consequence of a fall from some high place, had a fracture with irreducible displacement. We made every effort to reduce the fracture, but without success, and the upper fragment pressed strongly from within against the skin. In spite of all our efforts to prevent it, the skin, although not compressed by any part of the apparatus, was at last perforated. Fortunately, this took place twenty days after the accident; consolidation had already begun, and this late wound had no unfortunate consequence. The seat of the fracture, undoubtedly protected by the callus, did not suppurate, but the skin and the superficial part of the denuded bone did suppurate, and left a cicatrice slightly adherent to the bone.

II. *Compound fracture with a large wound.*—We have in No. 5 a man 40 years old, who offers an example of compound fracture. This lesion also is below the middle of the leg, and nearly at the place of election. It was caused by a fall from a height of two or three yards, in consequence of the breaking of the ladder on which the patient was standing. I do not think a direct cause intervened in the production of the fracture. The upper fragment of the tibia, which has not the form of a V, projected at the time of the accident through a slightly oblique wound which was an inch and a half long, the reduction was easily made; the fracture does not seem to be comminutive, but there is a wound of considerable size which evidently communicates with the seat of this fracture.

The prognosis is much graver, and the treatment will be more difficult than in the preceding case.

I shall try occlusion again; but although the edges are not much contused, I do not hope for immediate union of the whole wound, and suppuration of the bone seems inevitable. I shall leave the collodion dressing in place until I am warned by spontaneous pains and those excited by pressure that pus is collecting under it and should be let out. As soon as the presence of pus becomes incontestable I shall continue to keep the limb as immovable as possible in the trough, which will be lined with oiled silk so as to avoid a contamination which would compel us to raise the limb too often in order to maintain the indispensable cleanliness; the dressings will be renewed morning and evening. How will these dressing be made? We have to choose between several methods. Those which are most used today are alcohol and carbolic acid (1 per mille solution). To use it we begin by carefully removing with sponges all the pus which has collected upon the sides of and behind the limb; sponges are not used for the wound itself, we content ourselves with carefully wiping it with lint soaked in one of these liquids, and we exert pressure about it so as to favour the escape of the pus which might collect in some neighbouring pouch. If we find any of these pouches, which are not too far from the skin, we open them, and, if possible, pass drainage-tubes. In these ossifluent suppurations which threaten pyæmia it is important that the pus should not remain, for then it stagnates, decomposes, and may furnish for absorption the putrid materials which engender purulent infection.

When the wound has been cleaned, balls of charpie soaked in common alcohol unmixed with water, or in the carbolic acid solution, are introduced into it, and into its cavities if they are accessible. Over them are placed one or more compresses soaked in the same liquid, the whole is covered with oiled silk, and then the apparatus destined to keep the limb immovable is completed.

Are there any reasons for giving the preference to one or the other of these agents? I prefer alcohol during the first fifteen or twenty days, because its effect is to diminish suppuration, and the less abundant the suppuration the less does the patient weaken, and the fewer the materials susceptible of putrid decomposition. It is also possible, but it has not yet been demonstrated, that alcohol, by coagulating certain albuminuous principles of the pus, modifies them in such a way that their putrid alteration is rendered more difficult Perhaps also the alcohol, by its astringent action, obliterates some of the lymphatics and bloodvessels which might furnish passage to the putrid poisons. All these opinions have been uttered with a certain enthusiasm by the partisans of alcoholic dressings; but only one of them has been proved by clinical observation, that one is the diminution of suppuration. For this reason alone alcohol should be used during the first days. You will rarely see me continue its use after the twenty-fifth or thirtieth day, for if it diminishes suppuration, it also retards cicatrization. By long contact with it the granulations become small, the wound grows pale, and becomes painful sometimes, and does not dry over, if not in all cases, at least in a certain number.

I shall then begin with the alcoholic dressing; then if, at the time when purulent infection is less to be feared, I find that cicatrization advances too slowly, I shall substitute carbolic acid, which, without increasing the suppuration, generally maintains on the surface of the wound that rosy colour which indicates the regular work of repair. Of course, during the dressings, I shall examine from time to time with a probe to see if there is not some loose splinter to be removed. All the abscesses which form will be opened freely, and a general treatment with tonics prescribed. After the twelfth or fifteenth day I shall give the patient a drachm of phosphate of lime morning and night in his soup; he will also have five drachms of brandy daily, and all the nourishing food which he can and will accept, and which we have at our disposal in the hospital; finally, we shall try to obtain the best possible aëration of the ward. In this respect we are not as well provided for as I could wish. This patient is one of those for whom an isolated, well-ventilated, well-warmed room is necessary, or for whom, during the hot season, permanent or intermittent quarters in a tent or cabin like those which have just been built at St. Louis, Cochin, and Lariboisière, would be of the greatest use. Remember this, that of all the means preservative against purulent infection, immersion of the patient in a very pure atmosphere is by far the most important.

I have not raised, gentlemen, an important question which is discussed by all our authors in the chapter of compound fractures, that of amputation. Why have I not mentioned amputation to this patient? Because, in my opinion, he may get well and preserve the leg, and indeed his chances of dying are a little less than if I should now make an amputation, which would belong to the category of *primitive amputations*, that is, those which are made before the appearance of traumatic fever.

Notice first that the dangers from which I should wish to protect him are exactly those to which he would be exposed after an amputation at the place of election. His wound exposes him to a traumatic fever, which may be severe and even fatal, that is true, but amputation exposes him to the same. His wound exposes him especially to purulent infection, but that also is what we fear the most after an amputation. His wound exposes him in a certain degree to traumatic erysipelas and to a consecutive hemorrhage. But would amputation preserve him from them? Would it not rather expose him even more to secondary hemorrhage? His wound may perhaps leave him with an infirmity and a limp, but would not the necessity of wearing an artificial leg also be an infirmity?

Amputation would be justified only if I was certain that he was more likely to die by the injury than by the mutilation, through one of these complications. Now, upon this point I am in the most complete ignorance. I see in the regularity, which is still considerable, of the wound, in the presence of a fracture but slightly comminuted, in the very moderate disorder of the soft parts, conditions which make me hope for a cure; I recognize that my hopes do not go very far, I will even admit that the chances of death are greater than those of recovery.

I should like to show you by figures the proportion which exists between these two chances, but I have not recorded all the facts which have passed under my observation with sufficient exactitude to offer you the figures. I know that in my hospital practice I have seen more patients with compound fracture of the leg with large wound die than recover. In my private practice, on the contrary, of six patients of this kind four got well and two died, one of them of tetanus, and I am convinced that when the conditions of aëration in the hospital become the same as in private practice, we shall have the same results. Furthermore, I do not think I am mistaken in assuring you that, even with these good hygienic conditions, the mortality after primitive traumatic amputation is a little greater than after attempts to preserve the limb.

Notice that this mutilation adds one cause of purulent infection to those which exist in consequence of the wound itself, I refer to the serious moral perturbation. The man who, in full health and unexpectedly, is obliged to suffer the loss of a limb, without having been led to it progressively by long sufferings and a wretched existence in a hospital bed, as is the case with those whom we amputate for suppurating white swellings, without having been led to consider this mutilation a relief, is very much affected thereby. Now you may be sure that this great moral shock is a powerful cause of the accidents which follow amputation. Our patient, seeing that we have a strong hope and desire to preserve his limb which he knows is dangerously injured, is in this respect in better conditions, and for that reason I think he is less likely to die than if I should amputate.

I recognize none the less that in the present state of surgery this problem will not receive a rigorous solution until we learn from the statistics of a great number of observations in what proportion patients affected with such wounds as we have before us recover, and in what proportion they die, so as to compare these proportions with those given by primitive traumatic amputations. These statistics are very difficult to establish, because no single surgeon has enough personal facts to be demonstrative, and because in statistics comprising facts furnished by different surgeons, we can never be sure that the observations are identical, that, for example, they do not include fractures with much and with little shattering and those with small as well as large wounds. Moreover, success depends very much upon the care which is given to the patient and upon hygienic conditions. Now if they place in the same statistics patients who have not been properly dressed, or who have breathed a vitiated air, and those who have been subjected to the opposite conditions, the general result is not what it ought to be. In the lack of these rigorous proofs I act according to the reasons which I gave, and I advise you, whenever you meet with a compound fracture with a moderately large wound like the one I now speak of, but without much crushing of the soft parts and the bones, to do conservative surgery. I advise this particularly if you practise in the country, in small towns, in small hospitals, that is to say, in an atmosphere which is not vitiated by crowding.

I do not mean to proscribe absolutely primitive amputation in all cases of compound fracture of the leg.

If, contrary to my expectation, I saw gangrene appear in a few days, especially gangrene with emphysema, I should not hesitate to propose amputation. I do not think it will happen in this case, for the fracture is by indirect cause, and in such cases gangrene is much less common than when the fracture is by direct cause.

So, too, when the injury is accompanied by a considerable crushing of the marrow, by extension of the fracture to the tibio-tarsal articulation, and imminence of suppuration in this joint, it is hardly to be doubted that the patient will be carried off by intense traumatic fever or by purulent infection, and that the chances of recovery are a little greater after amputation. This then should be proposed to the patient. Gunshot wounds caused by large projectiles and with considerable shattering, direct fractures by a heavy body, such as the wheel of a wagon, and certain V fractures, sometimes cause lesions which authorize us to expect no good from conservative surgery.

Some of you saw me last year perform amputation the day after the accident upon a patient the lower part of whose leg had been caught under the wheel of a heavily laden cart and presented a comminuted fracture with laceration of the muscles and tendons and opening of the tibio-tarsal articulation.

I made another one at the same time in the environs of Montargis for a similar fracture with enormous shattering caused by the point-blank discharge of a fowling piece.

Both patients succumbed.

Let us suppose now that our patient in No. 5 has had only a moderate traumatic fever, that suppuration has set in regularly, and that from twenty to thirty days have passed without purulent infection, does that mean that he would be safe and that consecutive amputation might not become necessary?

You know, gentlemen, that suppurating osteitis takes in these cases the form of necrosis. Now, if this necrosis should invade a great part of the bone, if, in consequence, exfoliation should be very slow, if suppuration, having become very abundant, should undermine the patient's strength, if it was accompanied by continuous fever, with exacerbation at night, loss of appetite and of flesh, sweats, diarrhœa, if finally the patient seemed in danger of dying of hecticity, amputation would be indicated. It would be indicated all the more because, if, by chance and against all expectation, the organism should resist this drain, the patient would recover with fistulæ, a more or less painful hyperostosis, fresh necroses, more or less frequent attacks of inflammation, rebellious ulcers, in short, the whole series of permanent and recurring complications which we see about large necrosed bones. He would not be able to walk, and would lead a miserable existence, from which amputation would certainly save him.

Notice, too, that we should no longer have to fear, as at the beginning, the moral effects of which I have spoken. The patient would see that the limb would not get well, the surgeon would show him little by little the impossibility of preserving a useless limb, and would lead him to accept imputation as a benefit. But it is probable that it would be necessary to amputate the thigh instead of the leg; for the supurative osteitis would undoubtedly have invaded the whole of the tibia, and it would be better to apply the saw to the healthy femur than to the diseased tibia.

No one would think to-day of discussing the question of amputation conformably to the prize subject proposed by the Académie de Chirurgie in 1755, under the title: "*Amputation being absolutely necessary in wounds complicated with crushing* (*fracas*) *of the bones, determine the cases in which the operation should be performed immediately, and those in which it is proper to defer it.*" Faure, who obtained the prize,[1] did not answer the question as it was asked, and applied himself only to proving, in a general way, that secondary amputations were more successful than primitive ones.

Modern statistics have not confirmed Faure's opinion; but it is not the less true that, in practice, the problem cannot and ought not to be stated as the Académie de Chirurgie stated it.

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[1] Faure, Prix de l'Académie de Chirurgie, tome iii. in 4to. p. 489.

I rejected primitive amputation because it was not indicated, and because I could hope that it would not become necessary; I rejected it, and did not postpone it. If later I propose amputation, it will be because complications which I knew to be possible, but the appearance of which could not certainly be foretold, have arisen and have caused an indication which might possibly have remained absent.

In a word, in these great traumatic lesions we propose amputation when it becomes necessary; but we are never free to say in advance that we shall perform it at any one period of the disease rather than at another.

(The patient who was made the subject of this lesson suppurated for more than six months, lost three large fragments, and recovered finally with a solid callus, consecutive to the bony transformation of the granulations, and with a hyperostosed tibia. He left us, walking with crutches, he came to see us twice during the following three months, still unable to do without crutches; since then we have not seen him.)

LECTURE XIV.

FRACTURES OF THE LEG.

I. Compound fracture of the lower third of the leg with small wound and emphysema. Distinction between primitive or aërial emphysema, and consecutive or gangrenous emphysema. II. Fracture with large vertical wound and commencing gangrene. Imminence of dangerous septicæmia—Amputation.

GENTLEMEN: I. *Fracture with small wound and emphysema.*—We saw this morning a man who was admitted yesterday with a compound fracture, the wound being a small one, below the middle of the leg very near the place of election, of which I have so often spoken. It is one of those cases in which we have a right to expect recovery without suppuration, by means of occlusion with collodion. I call your attention to-day to a peculiarity which is not often seen. Placing your fingers over the fracture and pressing lightly you feel the fine crepitation which characterizes emphysema. Light percussion by snapping with one finger, gives sonority. We have then here an infiltration of gas about the wound. This complication, or rather this coincidence, was pointed out for the first time by Velpeau in 1839,[1] was well studied by one of his students, Dr. Boureau, in 1852,[2] by Morel-Lavallée,[3] and lastly by M. Demarquay.[4]

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[1] Velpeau, Traité de Médecine opératoire, 2d édition, tome ii. p. 321.

[2] Boureau, Thèse de Paris, 1856.

[3] Morel-Lavallée, Gazette Médicale, 1863, p. 520.

[4] Demarquay, Traité de Pneumatologie médicale, p. 289.

Whence comes this gas, and what is its signification in the prognosis?

Opinions varied upon the first question because it is difficult to give a rigorous demonstration of the way in which this emphysema is produced. I admit, with M. Demarquay, that it might arise in two ways, either by the infiltration of the external air into the subcutaneous cellular tissue, or by the spontaneous production of gas consecutive to a perversion of nutrition causing either a decomposition of the tissues, or an exhalation similar to that which takes place in the stomach and intestines of nervous people. I think that here we have to deal with the first variety, infiltration of external air, and that this air was introduced through the wound by muscular contractions which during and since the accident have caused a sort of aspiration about the little wound, according to the mechanism so well described by Morel-Levallée. It is then a primitive and not a consecutive emphysema, as it would be if it resulted from the spontaneous formation of gas in the tissues.

I base this opinion upon two reasons: 1st. The emphysema appeared early, for twenty-four hours have not yet passed since the accident. Emphysema by decomposition and exhalation rarely appears before forty-eight hours. 2d. Its appearance was accompanied by no serious general symptom; neither chill, nor quickening of the pulse, nor augmentation of the temperature, nor delirium, etc. Emphysema by decomposition, preceding traumatic gangrene, is accompanied by grave general symptoms which announce a speedy death.

For the second question, that of the clinical signification, I hesitate no more than for the first. This emphysema indicates nothing serious. Velpeau and Boureau, in saying that it indicated approaching death from which the patient could be saved only by prompt amputation, committed an error which it is easy to understand. Writing at a time when no one had yet spoken of this phenomenon, they remained under the impression of the facts which they had witnessed, in which the injury ended promptly in death. They were led into error by one of these circumstances: either the death was caused by the wound itself, without the emphysema having added anything to the gravity of the situation; or instead of a primitive emphysema by the entrance of the outer air, they had perhaps to deal with a consecutive or gangrenous emphysema, which they were not able to distinguish from the first.

To-day we are perfectly informed upon this point by the observations of the clinicists, and by the experiments of M. Demarquay upon animals. Infiltration of air giving rise to this primitive emphysema without fever is in itself not dangerous, adds in no way to the gravity of the wound, and by no means indicates amputation.

Watch this patient carefully, and I can assure you that if, as I hope, the small wound cicatrizes without suppurating, the infiltrated air will be slowly absorbed, the emphysema will disappear in four or five days, and the fracture will behave like a simple one.

(These predictions were verified, and the patient left the hospital three months after his admission.)

II. *Fracture of the leg with long vertical wound and commencing gangrene; amputation.*—We have had, gentlemen, for two days in No. 45, a teamster 45 years old, quite vigorous, but addicted for the last ten years to the use of alcohol, over whose right leg one of the wheels of his heavily-laden wagon passed. We found yesterday morning, the first day of the accident:—

1st. A fracture of both bones, of the toothed variety, a little above the junction of the middle and lower thirds, with very few splinters.

2d. A wound upon the anterior part of the limb five inches long, and parallel to the axis of the limb; or, if you prefer, to the adjoining crest of the tibia.

3d. A quite extensive loosening of the skin on the outer and inner sides of the wound.

4th. A denudation of the two fragments of the tibia, that is, a disappearance of the periosteum from the outer and inner faces of these fragments for a distance of at least an inch from the fracture.

This compound fracture is one of the most dangerous that you can meet. It does not owe this gravity to the multiplicity of the fragments, and to the crushing of the bone and the medullary substance. If this crushing existed with the other conditions of which we are witnesses, we should be in presence of the variety which is unquestionably the most dangerous of all fractures of the leg. That which gives the prognosis in this case an unfortunate character is first the alcoholic habit, a habit which, without our being able to explain it, renders the subjects much less likely to recover from great traumatic lesions; and second, the action of the body which produced the injury. This evidently is a fracture by direct cause; now in all these fractures the effects of the contusion of the soft parts are necessarily added to those of the solution of continuity of the bone, and as the wagon was very heavy, we may fear that the contusion has been severe enough to ultimately produce gangrene, if not of the whole limb, at least of a notable part of the skin. Now, at the time of the first examination it was precisely gangrene of the loosened skin which I declared possible and even probable. Upon what did I base this fear? First, upon the commemoratives which indicated the passage over the leg of a very heavy body.

Notice well, gentlemen, that the wound is a vertical one. Now how can the wheel of a wagon, passing transversely or obliquely across the leg, produce a vertical wound? It does so by forcibly pressing the skin against the crest of the tibia which becomes, in consequence of this pressure, the real vulnerant body, and cuts, from within outwards, the skin forcibly stretched over it. Certainly, it is not because the crest of the tibia has been the vulnerant body for the skin that the wound is dangerous; but this mechanism of the wound necessarily supposes very violent pressure, and consequently the most serious results of the contusion.

Notice, also, that the skin is loosened for a certain distance about the wound. You know what this loosening is, for I have often spoken about it; it is the result of great oblique pressure, that is to say, it is produced by very heavy vulnerant bodies which, instead of concentrating their action upon a point parallel to the axis of the leg, pass transversely or obliquely across this axis. The wheel of a wagon, a rolling cask, act in this way. Now, in passing obliquely, the vulnerant body slides the skin over the subjacent layers and causes more or less extensive rupture of the subcutaneous connective tissue. It is precisely this rupture which explains the loosening seen in our patient. You understand that by this loosening a large number of the blood-vessels which go from the subcutaneous layers to the skin are torn, and consequently this membrane loses a part of its means of nutrition. You know, also, that the pressure crushes and destroys part of the capillaries and nerve-filaments, another cause of the death of the skin. Consequently a patient over whose leg the wheel of a wagon has passed, causing a vertical wound, a loosening, and a violent contusion of the skin, is much exposed to gangrene of the latter. He may also, if the pressure has extended far enough to cause rupture of the deep vessels and nerves, have gangrene of the whole limb. You saw me yesterday seek the pulsations of the dorsalis pedis and posterior tibial arteries. Having found them easily, I concluded that the tibial arteries had remained intact, and that doubtless the patient was not exposed to general gangrene of the limb, gangrene which I should have considered imminent if I had not found these pulsations upon the wounded side and had found them on the other. But I still feared mortification of the skin, and for that reason I spoke to the unfortunate man of amputation of his leg. He refused and asked for twenty-four hours for reflection.

This morning you saw that the skin about the vertical wound was cold and insensible to the prick of a pin, and that it presented a yellow-brown or livid colour, which it did not have yesterday. We also found on each side and behind an emphysematous crepitation which I attribute to commencing putrid decomposition of the connective tissue. The patient has as yet no traumatic fever. But this fever will undoubtedly soon appear, and that is why I urged the patient to submit to amputation.

Why did I urge this? First, amputation is indicated because, as the patient is destined to lose a part of the skin of the leg, the repair of the integument, supposing death not to occur, would be very slow, and all the more difficult because the bones would be very much enlarged by condensing osteitis; and if the cicatrix finally formed, it would be very thin and probably adherent to the bone, so that it would constantly tear and be covered with relapsing and rebellious ulcers which would constitute a deplorable infirmity.

Further, amputation is indicated now, and it is urgent. For to the other dangers which threaten the patient, we must add those of which the gangrene may be the occasion. For sometimes, although only the skin and subcutaneous cellular tissue have been destroyed, we see, after the third or fourth day, grave general symptoms arise, burning fever, delirium, jaundice, and prostration, followed by a rapid death.

I admit that these accidents may be attributed to traumatic fever, which is thought to-day to be a variety of septicæmia. But they would be much more intense than usual, and it is allowable to think that this greater intensity would be due to the worse character of the septicæmia, for the putrid gases which form under the skin, and there produce the consecutive emphysema, might be reabsorbed and become the cause of a more serious poisoning than that of the ordinary traumatic fever. However that may be, in such a case, when gangrene has commenced with emphysema, death is imminent unless the putrefying part is removed in time. That is why I urged the patient more strongly than I did yesterday to submit to amputation.

Fortunately the gangrene and emphysema have not extended to the upper part of the leg, and we can amputate at what is called the place of election, and still be beyond the limits of the trouble.

(Amputation was performed. The patient did not succumb to the traumatic fever, but he was carried off by purulent infection fifteen days after the operation.)

LECTURE XV.

BI-MALLEOLAR AND SUPRA-MALLEOLAR FRACTURES OF THE LEG.

I. Bi-malleolar fracture—Obscurity of the mechanism—Two cases, one without displacement, the other with the displacement described by Dupuytren—Different indications for the two patients—Simple retention for the first—Retention with adduction of the foot for the second. II. Supra-malleolar fracture—Displacement difficult to correct—Possible eschar in cases of this kind—Explanation by more crushing behind than in front—Principal indication is to avoid an eschar.

GENTLEMEN: I. *Bi-malleolar fracture.*—We have at this moment in the wards two patients affected with simultaneous fracture of the lower extremity of the fibula and the internal malleolus.

I give this variety of fracture the name of *bi-malleolar*, although I recognize that sometimes in the fibula the solution of continuity occurs a little above the part which, strictly speaking, constitutes the external malleolus.

In both cases the fracture was caused by a misstep in which the foot was subjected to a certain degree of torsion. I wish I could tell you if the foot, at the moment of the accident, turned about its vertical axis from within outwards, so that the outer facet of the astragalus pushed the external malleolus backwards and outwards, while strong traction was exerted upon the internal malleolus by means of the lateral ligament, and that we might, following M. Maisonneuve,[1] explain the fracture of the fibula by divulsion, and that of the internal malleolus by traction. Nor can I tell you if at the time of the accident the foot turned about its antero-posterior rather than its vertical axis, nor if it took, to use Malgaigne's expressions,[1] the position of adduction, or that of abduction. For the patient could give me no precise information as to the way in which his foot turned.

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[1] Maisonneuve, Fractures du Péroné (Archives Gén. de Médecine, 3d série, tome vii. p. 165).

Reading the works of the two authors just mentioned, and Dupuytren's[2] much earlier one on this subject, one would believe from the manner in which they speak of the mechanism of fractures of this kind, that they were able constantly and very easily to confirm by their patients the theories which they developed upon it. But it is not so. The patients can almost never say how the foot turned, and can give the surgeon no information upon this point which can clear up his diagnosis and prognosis.

I admit willingly that we can study upon the cadaver certain points of the mechanism of fractures of the fibula, and especially that which relates to the effects of torsion of the foot. But we can never know if, in an accident, everything has taken place as in our experiments, for two reasons: first, because the patients, as I told you, do not know what has taken place; and, second, because in the living body we have, added to the torsion of the foot, energetic muscular contractions, and the weight of the body upon the lower part of the leg and the foot while they are in a vicious direction. These difficulties render the results of experiments upon the cadaver inapplicable to the clinic, and cast, it must be frankly admitted, great obscurity upon the mechanism of fractures. But on this point, as on many others, I like better to tell you that we do not know, than to give you false and incomplete explanations.

In one of our two patients the double fracture is accompanied by no deviation of the foot, and no other deformity than that which results from the swelling. The diagnosis, nevertheless, is incontestable. Not only have we found that sharp pain on pressure above the external malleolus and at the base of the internal one, which is one of the probable signs, but we were able to feel crepitation by the three principal manœuvres recommended for that purpose:—

1st. For the external malleolus, pressing with one finger upon the point of this malleolus while the other hand holds the lower part of the leg firmly; for the internal malleolus, seizing it between two fingers, and moving it backwards and forwards.

2d. Raising the leg, holding it firmly with one hand, seizing the foot with the other, the palm of which embraces the sole, while the thumb and middle finger are placed by the ankles, and moving it alternately outwards and inwards, sometimes without rotation, that is, carrying it bodily sideways, sometimes with rotation about its antero-posterior axis.

3d. Fixing the leg upon the bed, without raising it, with one hand, the fingers of which are placed over the ankle, and moving the point of the foot outwards with the other, thus giving it a movement of rotation about the vertical axis of the astragalus.

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[1] Malgaigne, Traité des Fractures et des Luxations, tome i. p. 808.

[2] Dupuytren, Leçons Orales de Clinique Chirurgicale, tome i.

In the other patient, on the contrary, you saw most notable deformity. When the two limbs are compared without raising them we see that the right foot (the injured side) is distinctly carried outwards, that its external border is slightly raised, and its internal border lowered, in consequence of the rotation about the antero-posterior axis which coincided with the abduction. Two finger-breadths above the external malleolus is a depression which Dupuytren compared to an axe-cut. The internal malleolus projects below the skin, which is very tense and seems threatened with rupture. But this projection is a little above the point of the malleolus, and is formed by the irregular surface of the upper fragment of a fracture which passes near the central part of this eminence.

You saw that I reduced the deformity by fixing the leg with one hand, and carrying the foot inwards with a double movement of bodily transportation and rotation about its antero-posterior axis. I showed you that during this manœuvre the point of the internal malleolus, forming the lower fragment, returned to its place, and that after the reduction, the skin was much less tense and no longer threatened with gangrene or perforation.

The prognosis in these two patients is very different.

In the former we have to fear neither trouble on the part of the skin, nor consecutive suppuration. We are sure that the patient will recover without deformity. The only ultimate troubles will be those of tibio-tarsal arthritis and synovitis of the neighbouring tendons. These troubles, of which I often speak (see p. 70), are inherent to all fractures near articulations, and of course to these which communicate with the joints, as these two must inevitably do. These arthrites and synovites differ in being accompanied by lesions, sometimes temporary, sometimes of very long duration, or even incurable, which limit the movements, render them painful, and make it difficult to walk. These lesions are a thickening of the synovial membranes, and consequently a rigidity; or, if you prefer, a loss or a notable diminution of their extensibility, artificial union by means of false membranes, between the articular surfaces and the parietal synovial between the tendons and their sheaths. In order that the articular movements and the gliding of the tendons may resume their physiological conditions, it is necessary that these lesions should disappear. That never occurs in less than from four to six months, and often much later. The length of time that is necessary depends especially upon the age. Especially during youth, and until about the age of forty years, the synovial membranes lose quite promptly these consecutive inflammatory lesions. After forty, and especially after fifty years of age they disappear much less rapidly, particularly if the subjects are rheumatic or gouty. It is then that you see the patients, especially the women, walk for years slowly and painfully with the help of a cane. In this respect the condition of our first patient is favourable. He is thirty years old, and is not rheumatic; we may then hope that he will feel the consequences of his articular fracture for only five or six months. I do not mean that he will be confined to his bed during all this time; on the contrary, fractures of this kind, like those of all the small bones, like those of all the extremities of long bones, consolidate rapidly, and it is not necessary to keep the limb immovable for more than thirty days. After that immobility is no longer of any use to the fracture, and it may have disadvantages for the articulation already inflamed by proximity, and especially for the small articulations of the foot. In this respect, I make a distinction, as I have already shown you, and as I shall again show you hereafter, between the joint or joints which are near the fracture, and those which are more or less removed from it. The first present the lesions and symptoms of arthritis; but as these lesions are the result either of the propagation of the inflammatory process from the fracture to the synovial membrane, or of the traumatism in which the articulation has participated, we cannot tell to what extent the immobility has contributed, and in this respect M. Teissier (de Lyon)[1] invoked a number of facts which are not demonstrative, when he cited examples of arthritis of the knee with neighbouring fracture of the femur. The second, on the contrary, those which are more or less distant from the seat of the fracture, and which we may suppose not to have participated in the effects of the traumatism, may alter in consequence of prolonged immobility, and they alter the more as the articulations are smaller and tighter, such as those of the hand and foot. There would then be reason to fear that by keeping the foot immovable too long, we might produce in the small articulations of the tarsus and metatarsus the lesion pointed out by Teissier and Bonnet de Lyon,[2] which are followed by more or less painful prolonged rigidity.

To return to our first patient. I say then that he will have an inevitable tibio-tarsal arthritis; but that as he is young and not rheumatic this arthritis will remain subacute, and will not pass to the state of curable but prolonged chronic arthritis, nor to that of incurable dry arthritis, and as I shall not leave him very long in the immovable apparatus, he will also escape those arthrites caused by immobility and the consecutive stiffness which we see especially in the small articulations.

As for our second patient, if we should do nothing or if we should not treat him properly, the prognosis would become very serious. First, if we should not make the reduction an eschar might easily form over the upper fragment of the internal malleolus and cause its suppuration and that of the articulation itself. If suppuration did not occur consolidation would take place with the foot in its present position. That would be a deformity, and at the same time an infirmity, for the patient would walk upon the inner border of the foot and not upon the sole. The internal lateral ligament and the inner portion of the synovial membrane would be constantly strained, causing repeated sprains and incessant tibio-tarsal arthritis, which would compel the patient to walk very little and to rest himself frequently.

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[1] Teissier, Mémoire sur les Effets de l'Immobilité des Articulations (Gaz. Médicale, 1841).

[2] Bonnet, Traité des Maladies des Articulations, tome i. p. 67.

Treatment.—That of the first patient will be very simple. In a few days we shall wrap his foot and the lower part of the leg in a silicated apparatus which will be removed about the 25th or 30th day, counting from the accident. After having taken it off we shall permit the patient to walk with crutches; we shall advise him to move his foot while lying in bed, and we shall ourselves communicate some movements to it every morning, in order to restore suppleness to the articulations and tendons. We shall apply prolonged frictions, either with the naked hand and grease, or with a flannel, and finally we shall give him some sulphur baths.

For the second one we have to make and maintain reduction. You saw that reduction was quite easy, but that the foot, abandoned to itself, returned promptly to its vicious position. It is then necessary to apply an apparatus which will hold the foot firmly in place. Dupuytren understood this indication perfectly, and met it with an apparatus which was as perfect as was possible at a time when they did not use immovable bandages. This apparatus, which I have applied temporarily upon this patient because there was too much swelling to allow of the immediate application of an immovable one, and which I am glad to show you, because you may be obliged to use it yourselves sometimes, is composed:—

1st. Of a very long bag filled with chaff and folded at the middle, which is placed, thus folded, upon the inner side of the leg, taking care that it does not descend as low as the internal malleolus and that it leaves it free; for you understand that from the moment we fear an eschar at this point we must abstain from compression.

2d. Of a wooden splint long enough to cover the bag and extend beyond the sole of the foot, so as to leave a gap between itself and the foot.

3d. Of two bands, one of which is rolled about the upper and middle portion of the leg and fastens the bag and splint there, and the other, as soon as the foot has been brought inward by the manœuvre of reduction which I indicated a little while ago, forms a figure of 8 about the lower part of the leg and the foot, holding the latter close to the splint.

This dressing meets the indication very well if it is sufficiently tight over the foot and is renewed almost every day, for it gets loose very easily. You saw that after the apparatus had been applied I placed the limb upon a large and rather high cushion of chaff, resting the limb upon its outer side, as Dupuytren advised in cases of this kind, and as, before him, Pott advised for all fractures of the leg. This position has no advantage when the limb is in the Scultet bandage, but it is much more convenient when it is set with an inner splint. A hoop to keep off the weight of the bedclothes completes the dressing. Of course if the bands are too tight and the patient suffers, or if the inner border of the foot is pressed so tightly against the splint as to give pain, it would be necessary to loosen the bandage or to renew it before the end of the twenty-four hours. There is, however, no reason to fear gangrene by constriction, for the fractured region is not entirely comprised in the apparatus, since on the inner side the band passes over the splint and not over the foot itself.

If after forty-eight or seventy-two hours, I find that the inflammatory swelling does not increase, I shall apply an immovable apparatus. I should wait longer if there were any small wounds, phlyctenæ, or scratches which I wished to see cured before thus inclosing the limb. This delay would be no disadvantage if the Dupuytren apparatus were renewed every day, and if it certainly maintained the reduction.

It has happened to me sometimes, and some day you may meet with cases in which you will be obliged to do the same thing, to apply an immovable bandage on the first or second day. Once it was because the patient had violent alcoholic delirium, and disarranged his apparatus and reproduced the displacement of the foot by his movements. On two other occasions it was because, notwithstanding the care with which I placed the splint and bag, the displacement of the foot reappeared in a few hours, and the skin over the internal malleolus was so pressed upon as to render perforation or eschar imminent.

The application of an immovable apparatus having been decided upon, to which should we give the preference? Unhesitatingly to the plaster apparatus without the addition of gelatine. Why? Because it dries most rapidly, and if the foot is well drawn inwards and the reduction maintained during its application, I am sure that when the operation is terminated the bandage will be dry and will keep the parts as I placed them.

If by chance, in a case of this kind, you do not have proper plaster at your disposal, apply a bandage of starch, dextrine, or silicate of potash; but take care to keep the foot turned in during its application, and add to the inner side of the leg two thick linen cushions, one below the knee, the other above the internal malleolus, place over them a long inner splint like that of Dupuytren's apparatus, and fasten the leg and foot in the same way until all is dry.

The immovable apparatus should not remain more than 30 days in place. After that time the consecutive treatment is the same as that described in the preceding case.

II. *Supra-malleolar fracture.*—The patient in No. 26 is a man 61 years old, a little weakened by age, who, while descending a staircase in the dark, thought he had reached the bottom when he was still three steps from it. He fell, having, he says, his left foot and leg caught under his buttocks. You saw that the deformity resembles that of the preceding patient in this, that the foot is turned outward, that its outer border is raised, that there is the "axe-cut" depression above the external malleolus, and abnormal projection of the internal malleolus with a depression below. The foot is drawn backwards as well as outwards so that the skin is pressed upon and endangered by a very large bony prominence formed by the upper fragment of the tibia. For it is easy to see, by taking the leg in one hand and the foot in the other, and trying to restore their normal shape, that the principal line of the fracture is above the line of the malleoli, and passes through the inferior extremity of the tibia a few lines above the articulation, and through the adjoining part of the fibula. It is then one of those fractures which, on account of their position, Malgaigne[1] named *supra*-malleolar. You noticed that, after having made an almost complete reduction, I saw the displacement immediately reappear, and that after having placed the limb in a wire trough I saw, notwithstanding the anterior splint, the foot again turn outwards and backwards. I then placed two graduated compresses along the anterior and inner portion of the tibia, after having first applied a layer of cotton; then, adding the bag and anterior splint, and tightening the straps over them, I managed to maintain, if not the whole, at least a very great part of the reduction. We are here then in the presence of a supra-malleolar fracture with complex displacement, difficult to correct.

It is not always so in supra-malleolar fractures; I have seen some, and Malgaigne also gives examples, in which there was little or no displacement, and in which reduction was easily maintained. On the other hand, the present case is not uncommon. Malgaigne quotes two similar ones from Dupuytren's work in which the splints, the only apparatus used at that time, did not prevent the displacement from obstinately reappearing, and the upper fragment of the tibia from causing a large eschar followed by suppuration and serious accidents. The patients recovered with a deformity and an infirmity. I myself had at the Hôpital de la Pitié in 1866 a man 66 years old, in whom a similar fracture was followed, in spite of all my care, by an eschar, suppuration of the articulation and bone, and finally by purulent infection and death.

To what is the difficulty of retention and consequently this gravity due? The authors have not explained it, but this is the explanation which I reached by autopsical examination of my last patient and a study of one or two specimens in the Musée Dupuytren. The fracture is undoubtedly produced, or, if you prefer, completed by the mechanism of crushing, that which takes place in most of the fractures of the extremities of long bones, and which has been well studied, especially for fractures of the lower end of the radius and upper end of the femur. At the moment of the accident the upper and lower fragments are pressed against each other by the weight of the body and by contraction of the muscles. This reciprocal pressure has caused the crushing of the cancellous tissue, a crushing favoured by its greater fragility which is the consequence of age, and which appears much sooner in some subjects than in others.

Remember that this patient is sixty-one years old, and that the one at La Pitié was sixty-six. The crushing is not regular, it is greatest at those points where there was most pressure, and those points are the ones where the muscular action was most energetic. The action of the peronei, the gastrocnemius, and soleus predominated, and was undoubtedly favoured by the abduction and extension of the foot at the moment of the accident. In consequence of this predominating action the sinking and crushing of the cancellous tissue were greater on the outer side and behind than in the other directions. When we replace the foot in its natural position, it can maintain it only if the fractured surfaces are interlocked at some points, but if this condition is lacking, and an empty space exists there where the crushing has been greatest, it is plain that the effect of the tonicity of the muscles is to draw the foot in the direction indicated by the irregular form of the fragments.

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[1] Malgaigne, *loc. cit.*, p. 818.

If, in other patients, the deformity is less, or if retention is easier, it is because the crushing has not been so great, the cancellous tissue not having yet acquired great fragility, or because it has taken place more evenly, the foot not having turned outwards at the time of the accident.

However that may be, we must not expect in this patient recovery without deformity. Whatever we may do, there will remain a deviation of the foot outwards and a projection forwards of the upper fragment of the tibia. The interfragmentary callus which will be produced, as in all fractures of the cancellous tissue, will partly fill the gaps, but will not efface them entirely. It will be the less able to do so because these crushings of the spongy tissue are followed by a process of absorption which removes part of the bone. Great as may be the power of repair, it is not sufficiently so, especially in a subject advanced in age, to reproduce all that has been lost, and so much the less so because the surfaces left by the loss of substance are constantly drawn towards one another by the tonicity of the muscles.

That which we desire most of all, and that towards which we shall direct all our efforts, is to prevent the formation of an eschar which would transform our fracture into a suppurating osteo-arthritis. The indication to be met is that of preventing the upper fragment from pressing upon the skin, since we cannot meet that of entirely correcting the deformity. How is this end to be reached? By repeated reductions, and by compression all along the upper fragment, the limb being kept in a metallic trough. I would not apply the plaster apparatus very early in this case, for I fear the displacement might be reproduced below it, and that the dreaded eschar might be caused. I prefer the trough, which lets me see what is going on.

If after a few days I saw the skin endangered by the incessant reproduction of the displacement forward of the upper fragment, I might perhaps use Malgaigne's point. At the end of his article upon supra-malleolar fractures, this surgeon expresses great confidence in his process. "As for apparatuses," he says, "the inefficacy of splints and of bands is shown by the preceding observations, and I do not know any which, under such circumstances, can take the place of my screw apparatus." I should have preferred to this affirmation the exhibition of one or two cases in which the screw had succeeded. This kind of fracture presents special anatomical conditions which might well make it fail. Still, I repeat, if we cannot keep the fragments well enough in place to prevent an eschar we shall make use of it. Would it not be better to give the preference to the section of the tendo Achillis, and to hope that, as after this section the foot and lower fragment would no longer be drawn upwards and backwards, the upper fragment would no longer project so much forwards? I ask the question, but I do not yet possess any fact upon which I could support the use of this little operation.

(The patient recovered without eschar and without suppuration, by the aid of the trough and compression distributed all along the upper fragment. There remained an abduction and a deviation backwards of the foot, with marked false anchylosis of the tibio-tarsal articulation.)

LECTURE XVI.

CONSECUTIVE AND LATE PHENOMENA OF SIMPLE FRACTURES OF THE LEG.

I. Fracture of the leg eight years before—Complete restoration of shape and function—Slight persistent muscular atrophy—Considerations upon this atrophy. II. Another fracture dating from eighteen months—Deformity due to the persistence of the projection of the upper fragment. III. Old fracture with hyperostosis of the tibia. IV. Consolidation since a year ago—Persistence of neuralgic pains (osteo-neuralgia). V. Fracture with persistence of tibio-tarsal arthritis. VI. Recovery with outward rotation of the upper fragment.

GENTLEMEN: Chance has permitted us during the week to see here five patients who had been treated for simple fractures of the leg, either by myself or by other surgeons. This is an opportunity to call your attention once more to the remote consequences of these fractures, consequences of which I have often spoken to you without having any examples to show you.

I. The first is a young man of 25 years, admitted for a wound of the left arm, who had his right leg broken in the lower third at the age of seventeen years (eight years ago). You saw that the conformation of the bones was excellent, that there was no pain along them, that all the articulations of the foot had their normal suppleness and motions, and that his walk was free, and without limping. Here is, then, an excellent recovery with restoration of shape and of functions. It is due to the fact that the fracture was without displacement, or that, if the displacement existed, it was easy to reduce and keep reduced, and it has appeared early because the subject was young, for at this period of life, when the constitution is not scrofulous, the tendinous and articular synovial membranes quickly recover the suppleness and extensibility which are destroyed in cases of fracture by the neighbouring synovites and the lesions caused by the immobility. I showed you only that the muscles in front and behind were smaller than those of the opposite side. We recognized it: 1st, with our eyes, when the patient was lying down and when he was standing;

2d, with the hands, by comparing the two calves. There is, then, in this patient, a little atrophy of all the muscles of the leg.

Do not wonder at it; this atrophy is very common after fractures of the leg.

It was twenty years ago that I discovered it for the first time, and showed it to the students at the Hôpital Cochin. I also told you that Dr. Lejeune,[1] by my advice, chose this atrophy for the subject of his inaugural thesis. Since then, I have noticed it very often, and have produced it artificially in animals, especially in guinea-pigs whose thighs or legs I had broken. It would be difficult for me to say what parts of the muscles this atrophy specially affects. Is it the muscular fibre itself, or is it the interfibrillary connective tissue? In the studies which I made upon guinea-pigs, not having had occasion to make them upon men, it seemed to me that both parts were diminished. Having weighed, immediately after death, the principal muscles of the thigh, and found a difference between their weight and that of the corresponding muscles of the opposite side, I macerated both in ether, taking care to renew the liquid often; at the end of seven months the muscles were freed of almost all their fat, those of the fractured side had lost as much of their weight as had those of the other, and there remained the same difference between the almost exclusively muscular parts which remained. Thence I concluded that the diminution of weight was made in both the constituent parts of the muscles, but more especially in their contractile part. I should, however, say that it was impossible for me to thoroughly appreciate the new anatomical condition of this contractile part; with the naked eye I saw that it was less red and less vascular than on the unaffected side, and M. Lejeune remarked the same fact. On microscopical examination, I found the usual longitudinal and transverse striæ. Upon some of the fibres of the guinea-pig, it seemed to me that the transverse striæ were a little less apparent or masked by fatty granulations, but it was not so evident that I could affirm the chief lesion of the muscular fibre to be a granulo-fatty transformation. It is probable, but thus far I have not been able to determine it rigorously with the aid of the microscope, that this capital lesion is a diminution of the volume of the fibrillæ, and that the general atrophy of the muscle is the result of the atrophy of each one of its fibrillæ, which, however, have lost neither their normal structure nor their function of contractility.

Notice, gentlemen, that although the diminution of volume is appreciable by the eye through the skin, the contractile power seems to be as well developed as that of the opposite side. Examination with the dynamometer would perhaps be necessary to form a precise opinion upon this subject. I have never made it, because I did not think it would lead to any important practical results. What you ought to know is, that after fractures in general, and those of the leg in particular, the muscles diminish in size, without diminution of their functions, so far as the patients can tell. You should know this fact and forewarn the patient and his friends of it, for otherwise they would not fail to say that the diminution of the size of the limb was the result of bad therapeutics.

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[1] Lejeune, see page 71.

I shall have said everything that should be said upon this subject, after having reminded you that muscular atrophy, after fractures, is inevitable and irremediable. Inevitable, because, whatever you may do, it will always result; it seems to me to be the consequence, both of the immobility and of the irregular distribution of the nutritive materials which go in excess to the bone before and after repair, and in less quantity to the other parts; now, you are not able to prevent this irregularity of distribution, which, moreover, is necessary for the formation of the callus. Irremediable, for I have often prescribed gymnastic exercises and electrization, and I have not brought the muscles to their original volume. Still it is evident that if anything can be obtained and if they wish to try, it is to these two means that recourse must be had. But you must expect to succeed very imperfectly.

II. The second patient is a man, thirty-five years old, who was treated nearly eighteen months ago, in another hospital, for a simple fracture of the right leg. He walks very well, and seldom has any pain, feeling only a little when the weather changes. There is the same muscular atrophy as in the preceding case. But he has, in the lower third of his leg, an abnormal bony prominence, which ends in a point, and still has the form of a V. You know this prominence. It is that which is so often formed by the upper fragment. It could not be corrected, undoubtedly because the transverse displacement was irreducible. Consequently, this patient has a deformity without functional trouble. The patient, of course, thinks that his fracture was badly set. Do not believe it, and never criticize your *confrères* by attributing this imperfect result to them. Undoubtedly, it might be due to carelessness, but much more probably to that irreducibility to which I have already, on different occasions, called your attention.

III. The third patient is forty years old, and had his leg broken three years ago. He has recovered well; has no projection of the upper fragment, and since the sixth month, has been able to walk quite easily, and is free from any articular or tendinous stiffness. But the tibia has remained voluminous about, above, and below, the line of fracture. It is not the peripheral callus alone which causes this excess of volume, as it sometimes does, from the sixth to the twelfth week after the accident. No, if the callus (the one which Dupuytren called provisional) has at any time been very large, it is no longer so to-day, for, as is usual, it has been absorbed. But the tibia has been hypertrophied, and has remained so since the end of the treatment, that is to say, the osteitis, which was developed during, and for the purpose of the consolidation, has surpassed, though we cannot say why, the limits which were necessary for the formation of the callus; it has extended to nearly the whole of the shaft, and has there assumed the characters of hypertrophying osteitis, while about the fracture it has preserved those of reparatory osteitis. To-day it is no longer an osteitis, since there are no longer any continuous pains; it is what we call hyperostosis, and this lesion, which, however, causes no trouble, is absolutely irremediable.

IV. *Fracture consolidated since a year ago; persistence of neuralgic pains (osteo-neuralgia of the tibia).*—We have recently seen at our consultation (Pitié, 1866) a woman, 32 years old, whom I treated a year ago for a fracture of the left leg below its centre. The displacement was slight. I first used the Scultet apparatus, and then the plaster bandage. We noticed, during the treatment, more prolonged and continuous pains than in other patients. She complained every morning of having slept badly and of having had throbbings and shooting pains about the fracture. You know that these pains are very common during the first eight or ten days. You know that, ordinarily, they grow weaker and weaker, and cease about the twelfth day, or only reappear if the patients move too much or sit up in bed; in any case, they are temporary. Well, in this patient the pains continued until the end of the treatment. They appeared without any previous movement, were almost continuous, but became much worse at night. Furthermore, when I removed the plaster apparatus on the forty-fifth day, the consolidation was not finished; I had to keep the limb immovable upon the cushion-trough of which I have sometimes spoken, and I prescribed from 30 to 60 grains of the phosphate of lime daily; it was only at the end of three months that abnormal mobility could no longer be found. Ordinarily, this delay coincides with a painful consolidation I attribute it to this that the reparatory osteitis is troubled, and assumes this continuously painful form with which the slow organization of the callus coincides.

This woman left us a year ago; she walks without crutches, but with difficulty, and has come to consult us for the pain which she still feels in the leg. This pain is much more endurable than it was during the treatment; it is moderate while the patient is seated, but becomes notably intense after she has walked for from twenty to thirty minutes. She has then to sit down that it may diminish. It reappears sometimes during the night without appreciable cause. The slightest blow causes fresh intensity.

We examined this leg together. You saw a very regular callus, and with the exception of a very slight swelling about the fracture, to which I cannot give the name of hyperostosis, the conformation is excellent. But pressure at this point causes pain. What is this persistent pain? I cannot locate it elsewhere than in the tibia, and as we have agreed to explain by an osteitis all the anatomo-physiological phenomena which occur in the bone after fractures, and during their consolidation, I have to say that this woman has had an osteitis, like all those who have had a fracture; but that this osteitis, without having taken on the suppurative form and without showing any tendency towards it, has differed from those which we see in similar cases by the intensity and the continuance of the pain. For a long time I have made use of the expression, *osteitis of neuralgic form*, to indicate this variety, which we also see sometimes independently of fractures, and of which it is impossible for me to give you a satisfactory anatomical or physiological explanation.

As for the prognosis, I hope, basing the hope upon some similar cases, that this abnormal sensibility will disappear in time. But will it need one, two, or three years? I cannot say.

I advised friction with the chloroform liniment, and the use of a roller bandage or cotton wadding. I have sometimes seen this compression lessen the pain sensibly, and the apparatus has the other advantage of protecting the limb from those slight shocks which cause pain, the repetition of which undoubtedly aids to keep up the painful condition.

This fact reminds me of two analogous ones.

I saw the first in 1857 and 1858, at the Hôpital Cochin, upon a mechanic, 41 years old, named Pierre D. His fracture, which was of the left leg, kept him in the hospital from the 18th September, 1857, until the 20th March, 1858 (six months). At the end of this time it was not yet consolidated. The patient, wearied of the hospital, wished to leave with a new plaster apparatus which I removed three weeks afterwards, the 8th April. It was then that, finding mobility no longer, I considered the consolidation made. Seven months, less ten days, were needed to obtain this result. Well, during all this time the patient, who was neither pusillanimous nor a deceiver, did not cease to complain of daily and nocturnal pains, sometimes with cramps, sometimes without them, which resisted opium or were only slightly diminished by it, and of sleep broken by these sufferings.

We might have supposed a deep abscess of the tibia, but there was none. Nothing in his constitution or antecedents could explain these rebellious pains; he was not even nervous. Like the woman previously mentioned, he had never had syphilis. I questioned and examined him on this subject a number of times, and obtained a negative result. Nor was there anything in the wound to explain the problem. There had been little displacement, and reduction was very easy. We remarked only that the fracture had been produced by direct action. A large wooden gate which he was helping to raise had slipped, and its edge had struck his left leg obliquely. But how many fractures by direct action do we not see recover without this prolongation of the suffering!

I saw this patient for more than a year, for he continued to suffer, less and less, it is true, but always very notably, while walking. I prescribed the rolled cotton dressing, frictions with the chloroform liniment, and iodide of potassium and valerianate of ammonia internally. I cannot say that one of these measures was more efficacious than the others; I only know that little by little the pains diminished. Since then I have not seen the patient, and suppose that finally the sensibility disappeared.

The other patient was a lady, 39 years old, impressionable, and very nervous, who suffered cruelly for three months, during which, the fracture, a very simple one of the right leg, did not consolidate. It was only during the course of the fourth month that the mobility disappeared. Three years have passed since then, and the patient still walks with pain and with the help of a cane. Every movement, every touch, awakens suffering, and yet there has been no abscess, and syphilis cannot be for a moment supposed.

What other name than that of *osteitis of neuralgic form* for the first period of the disease, and osteo-neuralgia for the later period, in which it is difficult to believe in the persistence of an inflammatory process in the absence of suppuration and fresh swelling; what other name, I ask, can we find to indicate these unusual painful forms?

V. *Fracture consolidated since six months ago; persistence of painful arthritis.*—This patient is a woman, 58 years old, whom I treated for simple fracture of both bones of the right leg, in the lower third, six months ago. Consolidation was neither very painful nor slow. At the end of two months and a half, the patient left the hospital, unable to walk without crutches, and evidently suffering in the tibio-tarsal articulation. I then expressed the fear that the arthritis would last for a long time, that perhaps it would never disappear, for the age of the patient and the rheumatic pains which she had often felt, made me think her arthritis might take on the chronic and incurable form of the dry arthritis of old people. To-day, six months after the accident, the lower part of the tibia and the internal malleolus are hypertrophied, there is also a notable swelling of the ankle; the spontaneous movements of the articulation are very limited; communicated movements also are limited, cause pain, and are accompanied by some crackling. There is then, here, a persistent arthritis which seems to me to belong to the category of dry arthritis. The patient will be kept quiet, with soothing frictions and poultices for two or three weeks. I shall also give her some douches and sulphur baths. We shall thus obtain an amelioration; but I do not dare to hope for an entire cure, which, however, I should consider possible if the patient were younger. I fear that this woman is condemned to walk always with crutches, and very slowly, and that admission to La Salpêtrière[1] is the only useful thing we can offer her.

VI. *Fracture of the leg cured with rotation outwards of the upper fragment (consecutive displacement).*—I have again called your attention to a patient whom I treated here for a V fracture of the left leg, a simple fracture, but one which I could not reduce completely, as indeed happens quite often in V fractures. I placed the leg in a wire trough, and established compression all along the upper fragment, except at its point, where an eschar might have been produced. This patient, who is only forty years old, still suffers in walking, and as there is a notable swelling of the ankle, I consider him still affected with the remains of arthritis "by proximity," which we see after fractures, and especially after those which have a fissure extending to the articulation, as often happens in the V fracture. I have admitted him to let him rest for a few days, and to show you a deformity left by the fracture, deformity which I have seen several times, but which is not very frequent. When the patient is lying down and is asked to place his feet side by side, he does it easily, but by turning his thigh and knee outwards. If asked to place his knees in the same position, we see the foot and lower part of the leg turn inwards, that is to say, consolidation has taken place in this patient, not only with the slight projection of the upper fragment which you see, but with a rotary displacement, the upper fragment having turned about its axis from within outwards, and the lower one, with the foot, from without inwards.

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[1] An Asylum for Incurable and Indigent Old Women.

This is a deformity, but it causes no trouble in walking. As soon as he gets rid of his arthritis he will walk, but with his foot turned inwards; and after all, when dressed, the deformity will not amount to much.

It was more than ten years ago that I first noticed this variety of deformity, which, so far as I know, has not been pointed out by our authors, and since then I have seen it five or six times.

I should like to be able to tell you what causes it, how it happens, and how it can be prevented, but I don't know much about it.

The rotary displacement does not exist at the beginning, or if it does exist, it is so easily corrected that we do not pay much attention to it. It appears especially in fractures with transverse displacement of the upper fragment difficult to reduce and to keep reduced. Thus far, I have seen it only in V fractures. It appears from the eighteenth to the twenty-fifth day, after the patients have been long under treatment, and all has been done that should have been done, and care has been taken to place the inner border of the foot and of the patella in the relations which I have indicated. If the surgeon continues, while watching the patient, to occupy himself only with the position of the foot, all seems to be going on well, but if, at the period of which I speak, he compares the position of the foot with that of the patella, he sees that the latter is turned outward. He then removes the apparatus to make sure of the fact, and finds that, the foot being kept in place, it is the upper fragment, and the femur with it, which have turned outwards. It takes place little by little, without pain; the patient does not notice it, and when the surgeon discovers it the effect is irremediable; for it is useless for you to try to correct this consecutive displacement.

For me, at least, whatever plan I have tried has failed; and it is easy to understand. The consolidation is already too far advanced to permit the deformity to be corrected. We might make the callus yield by violent manœuvres, but we might also fail, and even if we did succeed, the consecutive displacement might be reproduced during the new consolidation. Perhaps also the exaggerated osteitis thus produced might cause dangerous suppuration. I have, therefore, considered it prudent to confine myself to moderate attempts at reduction, and they have not succeeded.

From the notions which I have given you, you should draw this conclusion, that, notwithstanding all possible attention, deformities, which could not be prevented, are possible after fracture of the leg, and instead of attributing them to the carelessness of the surgeon, as non-professional people are so prompt to do, we must consider them due to peculiar and inevitable conditions which our authors have not made sufficiently prominent. I shall add this other conclusion, that we cannot, in these cases of difficult fractures, give too much care and watchfulness during the first two or three weeks to the situation of the foot, with reference to that of the patella and knee. Perhaps, if you recognized this rotation from the beginning, you might remedy it, at least in part, and be more fortunate than I have been, for thus far I have only discovered it when it was too late to correct it.

LECTURE XVII.

FRACTURES OF THE LEG.

I. Fracture of the left leg more than a month old—Obliteration of the veins. II. Consolidation retarded. III. Pseudarthrosis with angular displacement; suture of the tibia; purulent infection.

GENTLEMEN: I. I called your attention during the visit to the patient, in No. 39, who has been treated for more than a month now in the wire trough for a fracture of the right leg. I could not apply an immovable apparatus on account of the numerous phlyctenæ and two small superficial eschars, the dressing of which required the leg to be left uncovered. The patient has had considerable œdematous swelling of the leg and foot for several days. This swelling, which occurred without pain, is not very rare in the course of fractures of the leg. You will find it rather upon adults and old men than in young people. What does it mean, and what will it become? It means that the venous circulation is obstructed in consequence of the coagulation of the blood. I do not think there is thrombosis of the femoral vein, for I did not feel a hard cord along its course, and pressure upon it did not cause the pain which is rarely absent in such a case. It is rather a thrombosis of the anterior and posterior tibial veins. We do not here find the pains which spontaneous phlebitis, with coagulation, often causes; but this pain is generally absent when only veins of the second order are involved. We cannot feel the hard cord because the veins are too deeply placed to be reached by our fingers, and the existing œdema increases the difficulty. I cannot, therefore, prove the existence of the thrombosis by physical signs; but I admit it because I know it has sometimes been demonstrated in autopsies after fracture, and also because I cannot otherwise explain the œdema. Notice that this is not an inflammatory swelling of the first period, for the tumefaction did not appear until towards the 27th day, long after the inflammatory phenomena had disappeared. On the other hand, we cannot attribute it to a disease of the liver, nor of the heart, nor to albuminuria, for the other foot is not œdematous, and the patient presents no symptoms of these different diseases. This little complication is instructive from two points of view; first, because the thrombosis will undoubtedly last a long time, several months; the œdema will increase when the patient begins to walk, and this swelling will join the other causes, with which you are acquainted; rigidity of the articulations and tendons, weakness of the muscles, to oppose the re-establishment of the functions; second, because it explains the possibility of the fatal emboli, of which Professor Velpeau[1] and M. Azam, of Bordeaux,[2] have published cases. We ourselves had here, two months ago, a woman who, on the 27th day of her treatment for a fracture of the leg, was suddenly taken with oppression, precordial pain, and lipothymia, which we attributed to a pulmonary embolus too small to cause death, but which, if it had been a little larger, would have completely obstructed the pulmonary artery and killed the patient promptly.

I wish I could point out, as a complement of these facts, a way to prevent the detachment and passage toward the heart and pulmonary artery of clots which I suppose to exist in the tibial veins inflamed by their proximity to the osteitis of the callus. But I am not acquainted with any prophylactic measures against embolus. That is one of those unfortunate complications which the practitioner should know of, but which, in the present state of our science, he can neither prevent nor cure when it appears.

II. *Delay of the consolidation.*—Since I am speaking of the consecutive and tardy phenomena, I want to call your attention to two patients with broken legs, the consolidation of which is delayed.

One of them, No. 5, Ward St. Vierge, is a young man 23 years old, who was admitted with a compound fracture. Thanks to the occlusion which we made with collodion, there was no suppuration, and then I hoped everything would pass as in a simple fracture; the limb was placed in a trough; the patient suffered no pain, but, when at the end of forty-five days I removed the apparatus, I still found very marked mobility; the 20th January, two months after the accident, as the mobility persisted, I applied the immovable apparatus which is still upon the fractured limb.

The other is a woman in No. 17, Ward Sainte Catherine; her fracture is more recent than the preceding one, dating from only forty-five days ago; however, the mobility and the pains which, from the beginning, have been greater than usual, still persist and compel us to use restraining apparatus.

Here are two examples of consolidation that has made but little progress; but notice, gentlemen, that I do not say non-consolidation, pseudarthrosis. For we must not confound a delay with a non-existence of consolidation, and, like Norris, perform operations in cases which would doubtless have been caused by immobility. As for myself, I claim that at least a year must elapse before the word pseudarthrosis is to be pronounced in a fracture of the leg. But to what can we attribute the delay in our patients? I admit that I find no cause. Syphilis, scurvy, pregnancy, nursing, have been invoked to explain pseudarthrosis; I cannot discover here the existence of any of these general causes; and if it is possible for syphilis to delay consolidation, our patients have not had it. If we examine the local causes we find, as a possible explanation of the delay, defective fixation of the fragments; but here immobility has been too well maintained for us to admit this cause. Finally it might be permitted to believe that there is, between the fragments, a piece of tendon, muscle, or aponeurosis, or a splinter which, by its interposition, prevents the callus from forming, but that is a thing which we cannot recognize, and which, indeed, we could not remedy.

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[1] Velpeau, Comptes Rendus de l'Académie des Sciences, 14 April, 1862.

[2] Azam, Bull. de la Société de Chirurgie, 7 June, 1864.

We shall continue then to keep our patients' limbs completely immovable, and we shall give phosphate of lime internally, to hasten the formation of a long callus.

III. *Ancient non-consolidated fracture, or pseudarthrosis, with angular deformity of the leg; suture of the bones; purulent infection; death.*— Gentlemen, pseudarthroses due to non-consolidation of fractures of the leg are exceedingly rare. You sometimes hear me speak of delays, but you have never seen any of our patients remain without consolidation. During more than twenty years that I have practised in the hospitals of Paris, I have not seen a single one of the fractures of the leg which I have had to treat, remain in the condition of pseudarthrosis. I am surprised then to find in Malgaigne's work the statistics of an American surgeon, Norris, in which are found—

30	pseudarthroses	of the humerus,
18	"	of the femur,
14	"	of the leg and tibia alone.

I wish to put you on your guard against the interpretation which has been given to certain observations in this table, and against the abuse which has been made of operations designed to cure pseudarthrosis.

The error is due to two causes: first, because, at a certain time, at the beginning of this century, when the operations of seton and resection had been proposed, some surgeons in America confounded delay in consolidation with non-consolidation, and considered fractures which still gave mobility during the second or third month, as having passed to the condition of pseudarthrosis. Now we know to-day that those fractures end by consolidating after four, five, or six months of treatment. The second cause is that they did not distinguish, among the pseudarthroses, those which they observed, or thought they observed, in patients who had been regularly treated, and those presented by patients who had remained without treatment, and whose limbs had never been set. Now you may be sure, gentlemen, that pseudarthroses, not only in the leg, but also in the humerus and femur, are exceedingly rare in patients who have been properly and perseveringly treated. If we remove from Norris's statistics the patients in whom they despaired of consolidation too soon, there would remain only those whose injury had not been treated at all. Now, those are extremely rare, for generally, fractures of the leg are so painful, that the patients have to keep quiet, and so easily recognized that the diagnosis must be made, and lead to treatment by immobility.

You may, however, meet with patients who suffer little, and in whom the diagnosis is rendered difficult by certain anatomo-pathological conditions.

I once treated a child, six years old, who had had a fall three weeks before I was called to see him. At Geneva, where the little patient then was, the surgeon who was consulted had not detected the fracture, and had allowed the child to walk, which he did with a little difficulty at first, but afterwards quite easily. He was brought to Paris, where one day he made a misstep, and felt a new pain in his leg (it was the right one). I found, near its middle, a slight swelling, which I was told had existed since the first fall; also pain on pressure at this point, where there was, however, no ecchymosis; and, finally, after several unsuccessful attempts, I felt very distinctly a mobility and a crepitation which left me no doubt as to the existence of a fracture of the tibia, and probably of the tibia alone. I did not doubt that this fracture had existed since the first fall, and had been consolidated not at all, or so incompletely that the new accident had caused the imperfect callus to yield.

Several conditions in children and young people may render diagnosis difficult, not only of a fracture of the tibia, but also of a simultaneous fracture of the tibia and fibula. The first is the preservation, at the place of fracture, of the periosteum, which acts as a means of union. The second is the toothed disposition, with reciprocal interlocking of all the points, and little excavations which correspond to them upon the other fragment. These two conditions, which, moreover, may very easily exist together, not only oppose displacement, but may prevent detection of mobility and crepitation.

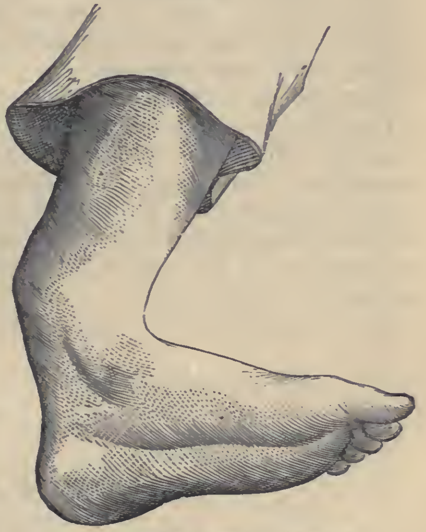
In a young man whom I treated in 1865, at La Pitié, and over whose right leg the wheel of an empty cab had passed, I was unable at first to recognize a fracture, and after several examinations, I made the diagnosis, *contusion of the leg*. The patient kept the bed because he suffered while standing, but he moved as much as he liked in it. It was only on the eighteenth day that, a small abnormal prominence appearing, I was led to examine it again, and I then felt a fine crepitation and a mobility, indicating a fracture of the tibia which I had mistaken at first for the reasons I have given. Suppose that in my little patient and in this latter, at La Pitié, new examinations had not been made, and they had continued to walk. Undoubtedly, consolidation would have been possible, but it might also have failed and a pseudarthrosis been established.

This is what probably took place in the young man, 19 years old, who was admitted into Ward St. Louis, No. 50, the 27th November, 1866. He told us that in December, 1864 (he was then 17 years old), one of his comrades had given him a violent blow with a stick upon the lower part of his left leg. He suffered, but did not fall; was not obliged to keep his bed, and continued to walk, though limping, without consulting anybody. He only knows that a small lump appeared at the place where he had been struck. A month after this accident he fell while trying to jump over a ditch. The same leg gave him a great deal of pain; he was carried home, where he kept the bed for several days, and then resumed his work in a factory. But he could no longer endure the fatigue; his leg caused him pain after a few hours of walking.

A little later he fell again, and was admitted to the Hôtel-Dieu, where he remained ten days without anyone speaking to him of fracture. After that he walked with more and more difficulty without being able to bear his foot upon the ground; then he saw that his foot turned outwards, and that his leg bent, forming an anterior and internal angle. This bad conformation was increased by the manipulations of a bone-setter.

To-day we are struck with the deformity of this limb. The foot and the lower part of the leg are turned outwards, and the leg presents, at its anterior and inner portion, an angle, the opening of which is directed outwards. Grasping the leg above and below this angle, we feel a mobility from before backwards and transversely which is not very marked, but which does not allow us to doubt the existence of an imperfectly consolidated fracture, of a pseudarthrosis with incomplete vicious callus. For the last six months the patient has been able to walk only by the help of a wooden leg, upon which he rests his knee. He declares that he will not remain in this state, and that at any price he wishes his leg to be straightened and solidified; he has repeated this declaration so often during the week he has been here, that I have determined to make an oblique resection followed by suture of the two bones.

Fig. 11.



Angular pseudarthrosis of the left leg.

The operation was performed in the following way: An incision about three inches long, and parallel to the axis of the limb, was made along its anterior portion, and crossed by another about two inches long. The four flaps made by these incisions were dissected backwards, and the angle formed by the two fragments of the tibia exposed. I then divided the intermediate fibrous tissue which united the fragments, and, exposing the lower one, I made, with a small saw, an oblique section downwards and inwards on the inner and posterior faces of this fragment. I then made the upper fragment project, and made, on its outer face and anterior border, a similarly oblique section downwards and inwards, so that, the two sawn surfaces facing one another, I could bring them exactly together. I then replaced the limb in its proper position, and with much difficulty perforated the fragments with a drill, and then passed a double silver wire through the holes, with which I fastened the bones together. The limb was then placed in a wire trough with cotton and oiled silk, and the wound, which was not united, was covered with a simple cerat dressing.

In short, the operation which you saw me perform was a mixture of resection and suture. Resection, without suture, was made in 1760, by White, and afterwards by a certain number of English and American surgeons. Then resection, followed by suture, was made in 1825, by Kearney Rodgers, an American surgeon, and by Flaubert, of Rouen, whose two cases were reported by Dr. Laloy.[1] It is true, that in all these cases the pseudarthrosis was of the humerus, and in all, except Flaubert's second, the section was perpendicular to the long axis of the bone. My operation was peculiar in this, that it was performed for a pseudarthrosis of the tibia, and that, conformably to the precept given by Flaubert after his second case, which was, if I am not mistaken, a case of vicious callus, and not of pseudarthrosis, I made oblique sections in the two fragments in opposite directions, and united them with a suture.

My patient, unfortunately, was attacked with purulent infection ten days after the operation, and died the 27th December. I show you here his lungs and spleen, in which you see numerous metastatic abscesses. There was also a sero-purulent effusion in the two pleural cavities, suppurative arthritis of the knee above the fracture, and an abundant suppuration between the fragments, which, though still held in contact by the suture, are not united by the beginning of a callus.

LECTURE XVIII.

FRACTURES OF THE PATELLA.

Non-consolidated fracture of the left patella, dating from 18 years before; separation of two and a half inches—Study of the movements and functions of the limb.

GENTLEMEN: I stopped for a long time this morning at No. 25, Ward Sainte Vierge, to study and to show you the results of an old fracture of the patella, the fragments of which are widely separated from one another, and do not seem to be united by an intermediate fibrous substance.

The man, who is 50 years old, tells us that 18 years ago (in 1850) he was brought to the same ward for a fracture of the left patella.

Velpeau applied an immovable bandage, with which the patient was allowed, he says, to walk after the tenth day. He assures us that the apparatus remained in place for four months, and that when it was removed the distance between the fragments was considerable. They then applied another apparatus which he cannot very well describe, but which seems to have consisted of two vertical straps fastened, one about the thigh, the other about the leg, with a circular bandage, and tied together over the patella; they were intended to keep the fragments near one another. This apparatus was removed every five or six days for about two months, and then, that is, six months after the accident, the patient left the hospital, walking with crutches, and with a considerable separation of the fragments.

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[1] Laloy, Thèses de Paris, 1839.

He spent six months in the country, during which his walking improved so much that when he returned to Paris he could walk easily and without a cane, take long walks without being fatigued, and did not hesitate to resume his former occupation of bar-tender.

He comes to us to-day for a small contused wound of the right leg, and would not have spoken of his former fracture, of which he no longer thinks, if we had not noticed it ourselves.

You noticed a notable deformity of the left knee. Two small bony prominences appear over it, separated by a long depression. We can feel that these two prominences are nothing else than the fragments of an old transverse fracture of the left patella, and by pressing back the skin over the intermediate depression we can feel the condyles of the femur. When the limb is extended, the separation is two and a half inches; when bent, it is five inches. When the leg is bent, we can see the outlines of the condyles of the femur under the skin between the fragments.

The patient complains of no pain, and has never had any inflammation. There is the usual amount of flexion and extension, and no abnormal lateral mobility.

We studied the movements, and found that the patient made all of them easily except those which require the almost exclusive intervention of the quadriceps femoris. For example, while he was lying down, I asked him to flex and extend the knee; he did it quite easily, but I showed you that the extension might be explained by the relaxation of the flexors, and the pressure of the heel upon the bed. To see if he used the quadriceps normally, I asked him to raise the heel from the bed without previously bending the knee. He was not able to do it. I then told him to bend the knee and then raise his foot from the bed and carry it into the air. He could not do that either. It is true, that all the muscles of the thigh, and especially the quadriceps, are less voluminous than those of the opposite side, as is the case, I have often told you, with almost all muscles after fractures. But although diminished, these muscles are not paralyzed. You saw that they hardened during the attempts he made to do what we asked of him, and that even the lower fragment was drawn up a little. If the movement of elevation of the foot, in the production of which the psoas and iliacus aid a little, but for which the action of the quadriceps is absolutely necessary, cannot be executed, it is because this action is not sufficiently transmitted to the tibia through the ligamentum patellæ.

I then made the patient rise and walk before us. He did it without the slightest hesitation or limping.

While he was standing with his feet together, I asked him to move the left one forwards; he did it, but by flexing the knee. I asked him several times to bring the foot forward without thus bending the knee, but he was unable to do so. Why? Because as soon as the foot is detached by the action of the psoas, iliacus, and adductors, the knee is held too feebly, and the foot falls either by its own weight or by the action of the flexors which are not counterbalanced. In fact, it is the quadriceps alone which can keep the knee extended whilst the foot is carried forward.

Although the physiological analysis of the functions of the limb shows us the loss, or at least a great diminution of the contractions of an important muscle, it is nevertheless true that the patient makes up for this loss by means of the psoas and adductors, and has no great difficulty in walking. He mounts staircases quite easily, descends them with a little more hesitation, placing both feet upon each step; can easily walk five miles without a cane, and continues uninterruptedly his fatiguing occupation.

The anatomical deformities, or, if you prefer, the morphological vices of a fracture of the patella with separation, are here carried to their greatest degree. I should tell you that you will find similar ones in many patients, but to a much less degree.

We often see a smaller separation, of not more than an inch, for example, cause at first functional troubles as great as those of our patient, and then gradually the patient becomes able to use his leg almost as well as the other. He feels his infirmity only when descending a staircase, and the surgeon detects the lesion only by telling the patient to raise his heel from the bed or to move his foot forward without bending the knee. These two equally difficult movements indicate an old fracture of the patella. That is the ordinary result. Do not forget it, whether the separation is greater or less, the limb is neither more nor less weak; it remains weakened, that is incontestable, but the patients, except, perhaps, those who have to do heavy work, do not perceive it, or habit has taught them to counterbalance the defect of contraction so well, that they pay no more attention to it.

Bear in mind, however, that this proposition, relative to the mode of cure of transverse fractures of the patella, is not absolute, and does not apply to all cases.

I establish, like our classic authors, a distinction between fractures without separation, or a separation of a few lines only, in which part of the surrounding fibrous tissue remains intact, and fractures with separation of half an inch or more, in which the fibrous tissue is completely torn across.

In the first case the fracture heals without separation, and with a bony callus, and the functions of the quadriceps are entirely re-established.

It is in the second case only that persistence of the separation is the rule, that its increase during the first weeks is not very rare, and that the cure is not by a bony callus. A cellular or cellulo-fibrous substance is formed between the fragments, and if it is dense it allows partial transmission of the effects of the contraction of the quadriceps to the ligamentum patellæ; but if it is not dense, and it almost never is, it does not permit this transmission.

Such is the rule; but I add at once that exceptions are possible, and that you may be fortunate enough to obtain, by a well-directed treatment, or by the existence of favourable organic conditions in your patient, the exception which we always seek, that is, the cure of a transverse fracture with separation either by a bony callus, or by a fibrous one strong enough to permit perfect extension of the limb.

Now two questions naturally arise here. Why these results? Why do our methods of treatment succeed only exceptionally in getting better ones?

1st. Why do we have recovery with separation and a too soft fibrous callus, or none at all? On account of local and general causes.

The predominant local cause in the case of an unopposed or unsuccessfully opposed separation, is the communication of the fractured surfaces with the articulation, and with an articulation which, participating in the consecutive phlegmasia, fills up with blood and synovia, and remains full of liquid for several weeks. The materials which would serve for the formation of a callus fall into this liquid and are lost in it. This explanation was first given long ago; you will find it in all your books, and it is always true.

A second local cause is the absence, before and behind the fracture, of tissues which might help to form the callus. For I have supposed that the fibrous tissue, which performs the part of periosteum and establishes the continuity between the end of the triceps and the beginning of the ligamentum patellæ, is broken. What remains in front of the patella? Connective tissue and the synovial bursa; but these tissues, not having been torn, do not undergo the consecutive inflammation which would enable them to exude the materials of the callus, or if by chance they furnish some, they fall into the articulation, and are not kept between or about the fragments. This absence of torn tissues, in front of and about the fracture, serves for an answer to the objections of those who say you attribute the difficulty of consolidation to the effusion of the reparatory liquids into the synovial cavity; how then does it happen that the vertical and transverse fractures without separation, or with very moderate separation, recover with a bony callus? The answer is very simple; it is that there remains about the fragments in the last two cases a fibrous portion which keeps them together, which has been sufficiently torn to furnish reparatory materials, and which serves as support and gangue to the callus, which having begun in it extends gradually between the fragments. Furthermore, when the latter remain almost in contact, we may suppose that the reparatory glutinous substance of the first days is retained upon their surfaces in sufficient quantity to furnish useful materials to the callus.

The general causes are inherent to the constitution. Remember, gentlemen, that this is a contest between two opposing forces; a tendency to repair, which exists for this bone as for all the others, and an effort constantly exerted by the tonicity of the quadriceps to keep up, and even augment the peculiar displacement which exists in this variety of fracture, displacement by separation through muscular action. Now, by increasing the separation, the quadriceps elongates the reparatory substance, disarranges it, and opposes its calcareous transformation.

Consequently, in fractures with considerable separation, you can have a bony or a very solid fibrous callus only if the surfaces of the fragments furnish materials capable of being rapidly transformed into solid substance, and if the muscles will remain inactive for a sufficient length of time during the treatment which you have instituted. We occasionally meet with patients in whom the reparatory tendency is sufficiently strong to furnish a solid intermediate substance during the time that we are acting upon the fracture. But we find more in whom the intermediate substance has not been able in this time to get the necessary solidity.

2d. Why do not our means of treatment always succeed in preventing this imperfect consolidation? You know why, if you have well understood the preceding details. We do not succeed for three reasons.

The first is that we find it difficult to bring the broken surfaces together, and to successfully oppose the action of the quadriceps. We sometimes succeed in bringing them into contact with the aid of certain apparatuses of which I shall speak. But this contact does not last very long. The quadriceps ends by slightly overcoming our opposition. If by chance it does not reproduce the entire separation, it reproduces it partially; or the fragments remain together in front, but separated behind. The second cause is that, in spite of the retention, the patient instinctively flexes the knee a little on account of the pain, and thus reproduces some of the separation. The third reason is that the contention is so exact that the patient suffers and loosens the apparatus, thus allowing the separation to again take place.

All three causes, or only two of them, often act at the same time, and in any case the same effect is produced, effusion into the articulation and immersion of the reparatory materials in the liquid which it already contains.

But that is not all; suppose that the mechanical problem has been solved, and that the fragments have been kept in place by the apparatus which you have chosen. If the consolidation is not complete when you remove this apparatus, from the 60th to the 80th day, for example, the quadriceps will recommence its unfavourable action. Its tonicity separates the fragments again, the intermediate substance yields, lengthens, and if the patient moves a little (and how are we to prevent him from moving after so long a time?), consolidation is arrested, and you have a separation with a soft intermediate substance, which amounts to about the same as if you had no intermediate substance. It is only in young and healthy patients that, during the eight or ten weeks of the application of the apparatus, the exudation has the time to organize into a strong fibrous or fibro-calcareous tissue so solid that the quadriceps can no longer act successfully against it and reproduce or increase the separation.

LECTURE XIX.

FRACTURES OF THE PATELLA.—CONTINUED.

I. Recent fracture of the patella with a separation of nearly three-quarters of an inch—Difficulty of the cure—Indications to be met—Different treatments by two kinds of apparatus; some closed, others open—Preference given to rubber rings. II. Sprain of the callus, and apparent relapse a year after a fracture of the patella.

GENTLEMEN: I. A man, 35 years old, a carpenter, whom we saw this morning during the visit (Ward Sainte Vierge, 28), caught his foot yesterday morning in his workshop among some pieces of wood which were lying on the floor. He fell forward, made a violent effort to save himself, and then fell backwards, feeling a painful sensation in his left knee. He was lifted up, and tried to walk, but could only take a few steps backwards, dragging his leg and leaning upon a comrade. He was at once brought to the hospital, and this is what we find:—

As physical signs:

1st. A notable swelling of the knee with a fluctuation that leaves no doubt of the existence of an effusion.

2d. A transverse depression in which the finger can easily lie, indicating a separation of nearly three-quarters of an inch, and increasing when the knee is bent.

3d. Above and below this depression a bony fragment, each of which can be easily moved sideways, and is evidently formed by one of the halves into which the patella has been divided.

As functional signs:

1st. Moderate pain when the patient does not move.

2d. Ability to flex the leg upon the thigh.

3d. Inability to then extend it without using his hands or pressing his heel forcibly upon the bed and making it slide downwards.

4th. Utter impossibility of detaching the heel from the bed, and notable increase of the pain in the knee when he makes the attempt.

By these signs you all recognize a transverse fracture ef the patella with a separation which indicates the complete rupture of the fibrous tissue in front of it.

This fracture has been produced by muscular action, for the patient fell, not forwards, but upon his back. I ask myself if these indirect fractures, by muscular action, should not be explained by a premature rarefaction and fragility of the cancellous tissue of the patella? However that may be, the lesion is not complicated by a sprain with lateral mobility, such as I have twice met with in fracture of the patella; but it is accompanied by an effusion into the articulation which, considering the rapidity of its production, must be principally formed of the blood furnished by the patella and the lateral fibrous tissues which were torn at the same time to a certain extent. But such an effusion does not take place after a traumatic lesion of the knee without causing the synovial membrane to inflame and promptly secrete an excess of synovia which increases the quantity of the effusion. There is then, together with the fracture, a beginning of the traumatic arthritis which is inevitable under such circumstances.

What is the prognosis and what will be the consequences of this fracture?

The prognosis is not serious, in this way, that life is not at all endangered, and in all probability the patient will recover the use of the limb to such an extent that he will be able to stand up, walk, and gain a living by the trade which he has heretofore exercised.

But the prognosis is bad in this respect, that the injury will compel the man to remain in bed for about two months, then to walk with crutches for one or two more, and finally to walk slowly with a cane for at least as much more. It is impossible to fix exactly the number of days, but it will be very long.

You will hear of patients who, after fracture of the patella, have remained only four or five weeks in bed, and have been able to walk without a cane at the end of two months. But those were patients who had fracture without rupture of the anterior fibrous tissue and without separation. In naming the approximative limits of the duration, I recall what I have observed in patients who, like this one, had fracture with considerable separation.

It may even happen that this duration will be longer than I said. I showed you that we have here also a traumatic arthritis; now, this arthritis may remain painful for a longer time, and compel the patient to take care of himself and not to work for six, eight, or ten months. I ought to tell you that I have but little fear of this prolongation, for he is still quite young, healthy, and not rheumatic.

The prognosis is also bad in this way, that the arthritis may possibly leave behind it an incomplete anchylosis, with very notable diminution of the movements of the knee, or even a complete anchylosis.

I had occasion to show here last year, a man, 56 years old, who after a well-managed treatment of a fracture of the patella, recovered without separation and with, very probably, a bony callus, but with almost complete anchylosis of the knee. I should have more fear of such consequences if our patient was older.

Suppose that the concomitant arthritis does not last long and is not followed by anatomical modifications injurious to the functions of the limb, the prognosis is still bad, in this sense, that this limb will not recover the integrity of its functions and the strength which it previously had. It would recover them if we should be so fortunate as to obtain either a bony callus or a fibrous one sufficiently short and solid to transmit the full effects of the contraction of the quadriceps to the ligamentum patellæ and the leg. Certainly such a result is not impossible.

I have preserved notes upon 20 patients whom I have treated during the last fifteen years for fractures of the patella with separation varying from one-third of an inch to an inch and a quarter, and in only two of them have I obtained a bony or fibrous callus, solid enough to allow the heel to be raised from the bed without bending the knee, and to cause the transmission to the lower portion of the patella of movements communicated to the upper portion, and reciprocally. And as one of them was twenty-two, and the other twenty-five years old, I ask myself if youth was not the principal condition which allowed this fortunate result to be obtained.

In the others recovery took place with considerable separation. The patients lost their ability to raise the heel from the bed or the sole from the ground without a previous involuntary bending of the knee. Their patellæ were composed of two pieces which could be moved independently of each other, and all had the same difficulty in descending the stairs when the knee was not supported by a knee-cap. Without that help they could only go from one step to the next by placing both feet upon the first and then advancing the uninjured one.

I fear still more a persistence of the separation when, pressing the two pieces towards one another with my hands, I do not succeed in bringing them into contact. That is the criterion which I recommend to you. When with your two hands you can bring the fragments into contact, there is hope of recovery without separation. This hope has less foundation when this contact cannot be obtained.

Dr. Lecoin, a former interne at the Vincennes Asylum,[1] had the good idea to record[2] the results which he observed during more than two years upon patients who, after having been treated in the different wards of the Paris hospitals, had been admitted to the asylum at Vincennes for their convalescence. These patients were 26 in number, but as one of them had had an iterative fracture of the same patella, the author makes the number 27. Well, in 23 of these there was a separation which varied from one-third to one and two-thirds of an inch, with independent mobility of each fragment. They had been treated by various apparatuses, some by the trough and elevation only, most of them by an immovable apparatus, two by M. Trélat's apparatus, one by this apparatus with Verneuil's modification, one by Laugier's rubber rings, two by Valette's (of Lyons) apparatus.

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[1] Situated outside of Paris, and designed for the reception of convalescents coming from the hospitals.

[2] Lecoin, Thèses de Paris, 1869, No. 249.

Notwithstanding the incontestable advantages of these methods, which I shall explain more fully in a moment, notwithstanding the talent and care of the surgeons, the separation persisted with an imperfect consolidation which left the patients in conditions nearly the same as those of non-consolidation.

As for the other four, they are given as recoveries with a bony callus. But the author could not learn in each case whether the fracture had been originally with or without separation. In one of them alone was it known that M. Cusco had made the diagnosis of fracture without separation, a fact which easily accounts for that callus being favourable.

On this point we know nothing in the other three. I will admit that all of them owed their bony callus to successful treatment of a fracture with notable separation; we should thus have three good results out of twenty-six, a proportion similar to mine (two good results out of twenty).

Can we obtain a better proportion? I believe so; but the proof is yet to be given.

Malgaigne[1] perhaps darkened a little the list of the inconveniences left by fracture of the patella which was healed with separation. Undoubtedly the limb remains weakened, in this sense, that the contractions of the quadriceps are no longer utilized except by means of the transmission of their effect through the fibrous tissues on each side of the patella, and by an elongated patella, the movable upper fragment of which consumes most of the effort which is communicated to it, and transmits but a very small part to the lower fragment.

We must also take into account the muscular diminution which I have often mentioned when speaking of fractures of the thigh and leg, and of which I showed you an example in a patient affected with an ancient fracture of the patella. But, nevertheless, most of the patients, all those who have retained neither arthritis nor anchylosis, and who suffer only the consequences relating to the quadriceps, become able to walk very easily without a cane, to take long walks without fatigue, and, in short, to no longer notice their fracture or the weakness of the limb, except when they go up, and especially when they come down staircases. Perhaps Malgaigne, in the estimate which he made of the results, did not sufficiently distinguish between that which was the consequence of the arthritis, and that which was the consequence of the weakening of the triceps, which was undoubtedly because he examined the patients too soon after the accident.

To exactly appreciate the consequences of a fracture of the patella they should be studied several years after the accident, and after being satisfied that the arthritis has left no bad result.

I must now mention another unfortunate element of the prognosis. The patient may perhaps break the other patella, and break it in the same way, by muscular action, and with separation of the fragments. I have seen an example of this, as have also Malgaigne,[2] Demarquay,[3] and M. Trélat.[1] Now, if the second fracture should give the same results as the first, the patient would be really infirm. With one bad patella and a good one upon the opposite side, the functions are well enough re-established, as I told you; but with two bad patellæ the weakness is very much greater. The walk is uncertain, needs artificial support, and cannot be long continued.

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[1] Malgaigne, Journal de Chirurgie, t. 1er, p. 201; and Traité des Fractures, p. 751.

[2] Demarquay, Gazette des Hôpitaux, 1866, p. 523.

[3] Malgaigne, Gazette des Hôpitaux, 1853, p. 312.

The patient whom I treated in 1869, and who is now forty years old, had had his right patella fractured nine years before. There remained, after treatment by the dextrine bandage, a separation of from one to one and a half inches, and very little or no intermediate fibrous substance. The left patella was broken in June, 1869, in consequence of a mis-step and a fall backwards. The separation was more than three-quarters of an inch before the treatment. At the end of a fortnight we treated him, Dr. Philippeaux and I, by means of an apparatus invented by the former which resembled in some points Fontan's and Vallette's. The fragments were kept almost in contact, but the pressure occasioned sometimes so much pain, especially at night, that the patient turned the screw and allowed the separation to be reproduced, tightening it up again the next day. This apparatus remained in place for seventy-eight days, at the end of which time we removed it, hoping that the intermediate substance had become solid. The patient remained in bed fifteen days longer with the leg raised upon an inclined plane; commenced to sit up on the ninety-third day, and to walk with crutches, still without bending the knee, on the one-hundredth day. Little by little the fragments separated by the lengthening of the intermediate substance which was too soft to resist the action of the quadriceps. This separation finally amounted to one and a quarter inches, the patient could walk only with a cane and slowly, go up and down stairs with difficulty, and could not take long walks.

These consecutive fractures of the patella are not so frequent that we are authorized to believe them due to a peculiar predisposition of the subject, or to the insecurity of the walk, and the exposure to falls after the first fracture, rather than to chance. But in any case there is no harm in remembering the possibility of the fact in making the prognosis and in choosing the method of treatment.

Treatment.—How shall we treat this patient?

We have to distinguish two periods: a first, of from fifteen to twenty days, during which we have to occupy ourselves only with the arthritis and articular effusion; and a second, during which, the inflammation having gone down and the effusion having diminished or disappeared, we may think of some apparatus for bringing the fragments into contact.

1st. For the first period, the patient will be kept in bed with his foot raised as high as possible, so as to relax the quadriceps femoris; for that purpose we might use simply large cushions of chaff. But on these cushions it is probable that the knee would soon flex a little. A resisting surface, to prevent, or at least to greatly diminish this flexion, is necessary. We might follow the example of Gerdy, and place a chair in the bed, so that its back, covered with a cushion, could support the leg. I have sometimes used this, and would do so again if I did not have other means at my disposal. I gave it up because the chair takes up too much room and troubles the patient, and also because it happens quite often that the heel sinks into the interval between two of the rungs so as to produce the flexion of the knee which we are seeking to avoid. Still the limb might be placed in a trough and then rested on the back of the chair.

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[1] Trélat, Gazette des Hôpitaux, 1862, p. 523.

Desault recommended a long posterior splint and an appropriate cushion. This splint extended from the middle of the thigh to beyond the foot; a long cushion of chaff was interposed between it and the skin, and it was kept in place by a roller bandage. But this bandage has the double disadvantage of getting loose too soon, which permits a lateral displacement of the splint and consequently a flexion of the knee, and of masking the injured region. This might be avoided by fixing the splint with three long bands of diachylon rolled about the thigh and the upper and lower parts of the leg. But diachylon easily irritates the skin and causes erythema with itching, and for that reason I do not like to use it.

I prefer an inclined plane, made like a trough, which I have made by any carpenter, to suit the size of the patient and the dimensions of the limb. Our patient will be placed upon a plane of this kind, by which the knee will be kept extended and the quadriceps relaxed. Poultices sprinkled with lead-water will be placed every morning and evening upon the keee. As the articulation is greatly distended by the effusion, we may be tempted to make a puncture, as Professor Jarjavay recommended and did several times for traumatic effusions in the knee without fracture. I have not thus far been a partisan of his operation, for here the inflammation is more intense than in simple contusions, and there would be reason to fear that puncture might cause it to become suppurative. Now, suppuration of this large articulation is too dangerous for us to expose the patient to it.

2d. For the second, I shall have to choose between two methods of treatment: simple elevation, or a uniting apparatus.

I understand perfectly that surgeons, who, like myself, have been struck with the rarity of recoveries without separation, have proposed to treat fracture of the patella by simple elevation of the limb. This is the advice which Valentin[1] and Sabatier[2] gave.

I would willingly adopt this method, which has the advantage of avoiding the constrictions and painful pressures of most bandages, if I could be sure of curing my patient without separation. But from what I have already told you, we have at least one chance in eight or ten of obtaining, by means of a uniting apparatus, a better result, that is to say, a very short and solid intermediate substance, and consequently a more prompt recovery and a complete restoration of the functions of the limb. It is all the wiser to take this chance because we can reduce the pain to almost nothing by multiplying the precautions and care.

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[1] Valentin, Histoire Critique de la Chirurgie Moderne, 1772.

[2] Sabatier, Mémoires de l'Académie des Sciences, 1783.

It now remans to choose a uniting apparatus.

A great many have been invented. I counted fifty from an interesting memoir by Dr. Bérenger Féraud.[1] Do not wonder at this abundance, gentlemen; it is explained by the difficulty which has always existed to obtain a good result, and by the eagerness to explain this difficulty by the insufficiency of the treatment; whereas a large, the largest, part should be attributed to the anatomical and physiological conditions of which I have spoken, and which no apparatus can completely suppress. The uniting means meet satisfactorily one important indication, that of bringing the fragments together and overcoming the action of the triceps; but while doing it they produce pain which causes the knee to bend instinctively, and thus re-establishes a certain degree of separation, which is one of the causes of non-consolidation. And then, whatever may be the patience of the patient, the apparatus cannot be kept long enough in place for the intermediate substance, at the time of its removal, to be solid enough to resist the traction exerted by the quadriceps. We succeed, as I told you, only when the subject is one of the few in which this solidity is promptly acquired.

Which one shall we choose?

I leave out first all completely closed bands which hide the injured region from view, and I advise you not to use them unless you find yourselves absolutely unable to procure the rather more complicated means of which I am about to speak. For whether it is a roller bandage with a double-headed compress above the patella, and another one below perforated to receive the ends of the upper one, the bandage which you know under the name of *the uniting bandage of transverse wounds*, or whether it is a roller bandage with crossed compresses placed above the upper fragment and below the lower one, you will always have this disadvantage, that if you do not tighten sufficiently over the knee the fragments will not be brought near enough together, and if you do tighten sufficiently you will have a painful compression. On the other hand, the apparatus soon loosens and the displacement is reproduced. It is in vain that you renew it every day or every second day; if you have taken care, by making it only moderately tight, not to cause pain, you allow the separation to be reproduced to a certain extent. Of course, if the roller bandages are used they must be accompanied by Desault's posterior splint and elevation of the limb. These two adjuncts correct the insufficiency of the method by at least relaxing the quadriceps and extending the knee.

Immovable closed apparatuses, made with dextrine, plaster, or silicate of potash, and applied about the fifteenth or twentieth day, when the articular swelling has gone down, have been much employed recently. These bandages are inferior to the preceding ones for the following reasons: during the first few days they keep the fragments well together, then they grow loose because the compression diminishes the volume of the muscles, and as soon as this diminution commences the upper fragment is drawn upwards by the quadriceps. If you employ an immovable bandage do not forget to place a posterior splint between its layers and keep the foot elevated.

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[1] Bérenger-Féraud, Revue de Thérapeutique Medico-chirurgicale, 1868, p. 481.

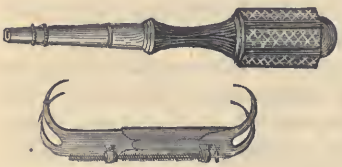
I give the preference to open uniting apparatuses, that is to say, to those which leaving the patella uncovered enable us to see if the separation is corrected or not, if the skin is excoriated, and to modify the situation of the pieces according to the results of this examination. These apparatuses are of recent invention, and will meet the indication of bringing the fragments together. But I establish a distinction between those which have to be made by a workman, and those which the surgeon can easily make himself.

In the large cities this distinction is of little use, since we can easily obtain the things we need; but it is not so in the country. Of course if fractures of the patella were frequent we might always have at our disposal one or the other of the uniting instruments which I am about to mention. But these fractures are rare; a busy practitioner will hardly see two a year, many will not see more than one or two in three years. Now it would always happen, if you kept the instrument on hand, that it would be rusty and would not work when you had need of it. Undoubtedly the remedy would be easy, for you would always have the time to have it repaired, or even to have a new one made during the fifteen or twenty days of the inflammatory period; but what is the use of having this trouble if these manufactured apparatuses do not give any better results than those which you make yourself? And that is just what happens.

I. Among the uniting instruments I will mention Malgaigne's hooks, the modification in their use proposed by M. U. Trélat, Vallette's instrument, and Fontan's.

1st. Malgaigne's hooks (Fig. 12) which I now show you, and which it is sufficient to see to understand, are composed of two pieces which can be moved along one another by means of a screw. Each piece ends in two hooks which are implanted above and below the fragments, traversing the tendon of the quadriceps and the ligamentum patellæ. After having been properly implanted, the two pieces are brought nearer by means of the screw and thus the fragments are held together. If the patient suffers too much it is loosened; if, after a few days, separation is reproduced, it is again tightened.

Fig. 12.



If I intended to advise you to use this instrument I should enter into longer details upon the manner of applying it, upon the difficulty of properly implanting the upper hooks, upon the considerable effort which is needed to do so, upon the pain of the first hours, upon the tolerance which is afterwards established, upon the possibility of phlegmonous and consecutive lymphangitis, of which I have had an example, and even upon that of an arthritis, like the one which I find reported in the *Union Médicale.*[1]

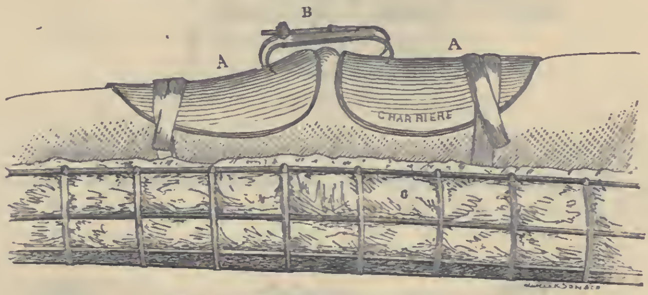
But I do not dwell upon it for two reasons.

First, the hooks, as applied by Malgaigne, because they traverse the skin offered many disadvantages, and were very disagreeable to the patients; they could not remain in place long enough for the consolidation to take place. They were applied on the fifteenth or twentieth day, and had to be removed by the fiftieth, and often sooner, because they held no longer; now at this period, as I have told you, the intermediate substance is not solid except in very exceptional cases. Consequently this gives the patient pain and annoyance without any profit.

Secondly, if you wish to use the hooks, you can now do so without traversing the skin, thus suppressing most of the disadvantages of Malgaigne's original method. For this we use Prof. Trélat's modifications.

2d. *M. U. Trélat's Method.*[2]—Dip in boiling water two pieces of gutta-percha five inches long, two and a half inches wide at one end and one and a quarter at the other. Apply one of them above, the other below the patella, modelling them exactly upon the anterior and lateral faces of the limb and upon the patella while the leg is completely extended. Then apply compresses dipped in cold water to harden the gutta-percha, and when it has lost its softness plunge it into a basin of cold water. Then while an assistant holds the fragments together, the surgeon places one of these pieces above the upper fragment, and fastens it there with a strip of diachylon long enough to go thrice around the limb. The same is done for the lower fragment. It only remains to implant the hooks in each of these plates without going through to the skin, and to screw together the two pieces of the instrument, thus bringing together the two pieces of the patella near to one another.

Fig. 13.



Trélat's apparatus for fracture of the patella.

It cannot be denied that this modification is ingenious, but is it not also a little illusory? Does not the upper plate slide over the fragment without pushing it along? Is there no reason to fear that the hard gutta-percha may cause excoriations and eschars? I feared so, and for that reason I have not used it. It is true that I was also turned from it by the preference which I gave to apparatuses made with vulcanized India-rubber, which had been proposed at about the same time, and which seemed to me to offer more security.

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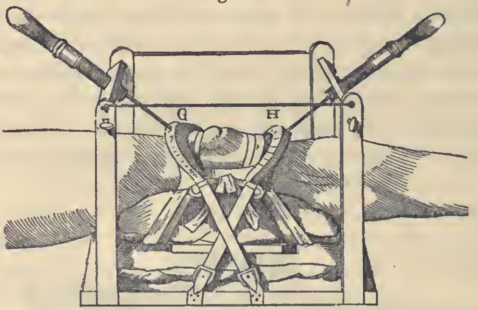
[1] Union Médicale, 18 December, 1871.

[2] Trélat, Note sur le Traitement des Fractures de la Rotule par un Nouvel Appareil (Bulletin Thérapeutique, 1862, tome lxiii. p. 447).

3d. *Fontan's Apparatus* (Fig. 14), *and Vallette's* (*of Lyons*) (Fig. 15).—I shall show you these without describing them. They are more complicated than the preceding ones, but both of them meet very well the main indication. Vallette's has the disadvantage of breaking the skin. Fontan's does not do that, but by the pressure it exerts it may cause eschars, consequently it needs to be carefully watched, especially when the skin is fine and thin, as in women.

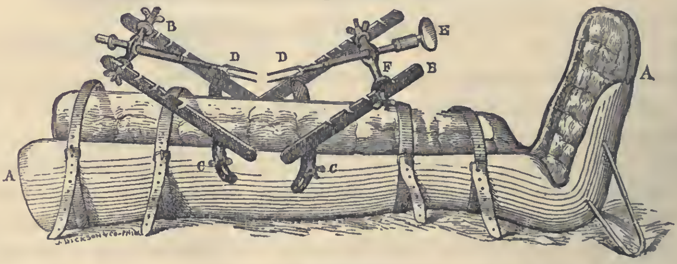
Fig. 14.



Fontan's apparatus for fracture of the patella.

In my opinion these are not superior to Malgaigne's and Trélat's, and they are inferior to those of Morel-Lavallée and Laugier; and therefore I have not used them and advise you also not to.

Fig. 15.



Vallette's apparatus.

II. Among the uniting apparatuses which leave the patella uncovered and which the surgeon can make for himself, I first mention Mayor's;[1] which consisted of a wire trough upon the sides of which were attached four non-elastic well-padded bands, two above and two below the knee. The limb being placed in the trough, the two upper bands are brought over and crossed above the upper edge of the patella and tied together on the side, and the two lower ones are crossed below the lower edge. The bands, thus tightened, ought to keep the fragments together. But to make it still surer three ribbons are sewed to each of the transverse bands and tied together, each upper one with a lower one, so as to draw the transverse bands nearer together, and with them the fragments. Morel-Lavallée's apparatus, well described by M. Bosia,[1] differs from Mayor's in this, that the transverse bands above and below the patella are made of India-rubber webbing, like that of suspenders, and that these bands, instead of crossing above and below the patella, cross on the edge and, at the same time, the anterior face of the fragments, so as to prevent them from tipping. Their action is also completed by the same vertical bands.

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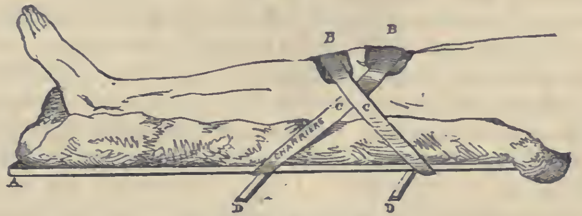
[1] Mayor, Gazette Médicale, p. 184.

4th. *Laugier's Method: Oblique pressure by means of two rubber rings.*—In the two preceding apparatuses the fragments were kept in place by pressure perpendicular to the axis of the limb, applied above and below the patella, and by parallel pressure. Professor Laugier[2] had the idea of using two vulcanized rubber rings which, placed obliquely, would press, by their elasticity alone, each fragment towards the other. The apparatus (Fig. 16) is arranged in the following way:—

Fig. 16.



Laugier's apparatus.

The limb is placed upon a board covered with a thick cushion. The board and the cushion reach an inch or two beyond the leg on each side. Two cross-pieces are fastened to the board, one of them three inches above, the other three inches below the patella. The board itself lies upon a cushion as long as the leg, the lower end of which is much higher than the other. The limb is placed upon the cushion, and two pieces of gutta-percha, after having been dipped into boiling water, are moulded upon the upper and lower ends of the patella. Then one of the rubber rings, in the form of a flat ribbon, is passed over the leg and the board and stretched from the lower cross-piece to the piece of gutta-percha which is over the upper fragment of the patella. The other ring is stretched from the upper cross-piece to the lower fragment. As the rings have to be stretched to take this position, their elasticity tends to draw the pieces of gutta-percha and, through them, the fragments together.

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[1] Bosia, Gazette des Hôpitaux, 1860, p. 413.

[2] This apparatus has been described by M. Gaujot (Arsenal de la Chirurgie Contemporaine, tome 1er, p. 246), and by M. Dubreuil (Gazette des Hôpitaux), 1869, p. 433).

I have used this apparatus twice; but fearing lest the hard gutta-percha might cause pain, excoriate the skin, and produce eschars, I substituted for it two cotton pads. In one case the result was excellent. In the other the separation reappeared when the apparatus, which had remained in place for forty-five days, was removed. In both patients I found that the pressure was sometimes very painful, and I had to allow them to remove the rings for a few moments and then replace them. I also found that the pressure was not sufficient, and I had to put more cotton under the rings to bring the fragments together.

To remedy these disadvantages, and to give the limb a greater and more certain elevation, I modified Laugier's method, for a private patient, in the following manner:—

I had the strong inclined plane, of which I have already spoken, made by a neighbouring carpenter, and had six hooks placed on each side, three turned towards the thigh, three towards the foot. I then made two rolls of cotton enveloped in coarse cloth, and sewed loosely on them two tubes of very elastic vulcanized rubber, to each end of which was tied a stout string. The limb being laid upon the inclined plane, I placed one of these rolls over the upper fragment, and while an assistant pressed the latter as near to the other fragment as possible, I stretched the tube by drawing on the strings and then fastened them to one of the lower hooks. I then placed the other roll below the lower fragment and fastened its strings to the upper hooks.

By this means I could modify the pressure at will, increase it when I found separation, and diminish it, without removing it entirely, when the pain was too great. After a few days I found that, notwithstanding the great pressure, the separation reappeared and the fragments tended to tip upwards. I then completed the apparatus by passing two elastic tubes longitudinally in front of the patella and hooking them to the oblique ones. In this way the fragments were kept exactly together. But I often had to yield to the entreaties of the patient, who suffered very much, and allow the vertical tubes to be removed for several hours at a time and replaced as soon as the pain was over.

Pain and eschars are always to be feared with these apparatuses, as with all those that exert a strong and steady pressure upon the same surface. It thus becomes necessary to watch carefully and to loosen the cords whenever the pain becomes great and the skin reddens. This last patient, who was a young man of 23 years, is one of those in whom I think I obtained bony consolidation. At the end of sixty days he walked without a cane, descended the staircases easily, and, when lying down or standing, could raise his foot without bending the knee. The separation, which at the beginning of the treatment was three-quarters of an inch, was only about one-eighth of an inch, and the substance which filled it was so solid that transverse movements communicated to the upper part of the patella were easily transmitted to the lower part.

In short, the two best results which I have obtained in treatment of fractures of the patella with separation, I have owed to apparatuses in which vulcanized rubber played the principal part, and that is why I give it the preference. Before that I had often used bands dipped in collodion.

I do not refuse to admit that other methods might give equally good results, but it seems to me that with vulcanized rubber, which can be so easily procured, the apparatuses have a simplicity of construction which should cause their adoption by every one.

In any case, do not forget, gentlemen, that, whatever may be the mode of treatment, recovery with separation will always be the exception, because the quadriceps will most often end by overcoming the still insufficient resistance of the intermediate substance, as soon as the six or eight weeks, beyond which it is very difficult to have the treatment borne, have passed, and the fragments have to be left to themselves.

To recapitulate, the treatment of our patient will be directed as follows:—

For about a fortnight I shall keep the foot elevated and apply poultices; during the following thirty days I shall use the bandage of vulcanized rubber; after which, still keeping the patient in bed and the foot raised, I shall see if the fragments separate. If they do not separate, I shall try to keep him in bed until the sixtieth day. If they do separate, I shall propose to the patient to apply the rubber bands for another month, which would give us in all eighty or ninety days of confinement to the bed, and in case he should not willingly accept the proposition, I should not urge it very strongly, for I am not at all certain that consolidation of this bone, if not obtained in forty-five days, can be obtained in sixty-five. Still, the attempt may be made.

After this period of confinement to the bed, the duration of which I cannot previously determine, I shall allow the patient to get up, and give him crutches.

I shall then occupy myself with the stiffness of the knee; if it is very great, I shall order moderate movements of flexion and extension to be made every morning and evening, and shall advise the patient himself to make some; in addition I shall prescribe massage and sulphur douches. If it is not very great, I shall tell the patient to execute movements of flexion himself, but with moderation.

There is one danger here which you foresee and which must be avoided. The intermediate substance, whatever its length and resistance, must be very carefully treated at this time. Already drawn upon by the tonicity alone or by the voluntary contractions of the triceps, it would be still more so by a flexion carried a little too far. Care must then be taken not to go beyond a moderate limit.

Then, when, fifteen or twenty days later, walking becomes a little easier, is possible, for example, with a cane, I shall advise the patient to support the knee while walking with a small roller bandage covering the lower third of the thigh and the upper third of the leg, and containing a posterior wooden splint. This dressing is intended to prevent a too great involuntary flexion, which might cause rupture of the intermediate substance or renew the arthritis; it is also intended to make walking easier and to allow a little beneficial exercise, and is to be worn only while the patient is walking.

This precaution will be taken for only five or six weeks if we find that the intermediate substance is solid, and if the separation has not increased. After that I shall prescribe the use of a rubber knee-cap during the day.

On the other hand, in case the separation should increase, and the knee, notwithstanding the disappearance of the arthritis, should remain very weak, the patient might use one of the more complicated knee-caps which by an arrangement of elastics or springs assist the action of the quadriceps, or may even supply its place entirely.

Whichever may be the apparatus used, you may be sure that after a few months it will be no longer necessary, and the knee will have recovered enough strength and solidity to no longer need any help.

III. *Sprain of the callus and appearance of relapse in a patient who had a fracture of the right patella a year ago.*—Here, gentlemen, is a woman whom I treated a year ago for fracture of the right patella, with bands dipped in collodion.

There remained, in spite of all my care, a separation of three-fifths of an inch, independent mobility of the fragments, and inability to raise the foot from the ground while keeping the knee extended. Flexion of the knee had not recovered its full extent, not going beyond a right-angle; nevertheless walking was easy, and I had advised the patient to wear a knee-cap, but she had soon neglected its use. Yesterday she made a mis-step, fell, and felt a slight crack and pain in the knee; she was, however, able to take a few steps, and then, thinking she had again broken the patella, she had herself taken to the hospital.

You may have noticed an ecchymosis on the anterior and inner portion of the right knee, and a very moderate swelling without appreciable effusion in the articulation. Movements are painful; flexion and extension are possible however, but the foot cannot be raised from the bed.

Let us not here commit the error which I have sometimes seen committed, that of believing in a complete rupture of the intermediate fibrous substance, and the reproduction of a fracture, and thence conclude that the patient ought to be subjected to a treatment of two or three months in order to re-establish the broken callus.

Instead of an iterative fracture this is simply a sprain with very limited rupture of the new tissue which unites the fragments, and it is because the bloodvessels of this tissue are numerous and fragile that a considerable ecchymosis has been produced by a very limited fibrous rupture. I say that this rupture is not complete, and even that it is very small, because the separation is not greater than when I last examined the patient, and because I still feel between the fragments a certain thickness of tissue which prevents my touching the condyles of the femur.

I also base the opinion upon two analogous cases, both in women, which the physicians first consulted supposed to be iterative fractures. As I had treated the cases fifteen months before, and as I found the parts in the same anatomical condition in which I had left them, I declared that it was only a sprain, and that the patients would be able to walk in a day or two, just as before the accident. The events justified the prediction.

In the present patient the lesion is the same, sprain of the fibrous callus, probably rather vascular, of the patella. The patient will remain three or four days in bed with poultices sprinkled with spirits of camphor, then she will replace her knee-cap and be able to walk.

The ecchymosis will gradually disappear, and furnishes no special indication.

LECTURE XX.

SIMPLE FRACTURES OF THE SHAFT OF THE FEMUR.

Simple fracture of the shaft of the femur—Commemoratives—Attitude of the patients—Deformity—Apparent shortening, real shortening—Abnormal mobility—Double manœuvre to seek it—Crepitation—Exact point of the fracture—Consecutive arthritis of the knee, of the hip-joint—Overlapping irreducible by the bands and simple bandages—Employment of chloroform—Scultet apparatus—Continuous extension—Reasons why it is not generally used in practice, its utility in certain cases—Preference given to Hennequin's apparatus.

GENTLEMEN: We have at this moment in the wards several patients affected with fracture of the shaft of the femur. I take the opportunity to show you the peculiarities presented by this lesion, which is quite common in practice.

I take as types the patients lying in Nos. 5, 11, and 46. All three represent their injury as caused by external violence. The first was run over by an omnibus, the others fell from a high place. Only one of them heard a crack at the time of the accident; the other two do not remember the circumstances of their fall. Neither was able to rise after the accident, and all were brought to the hospital by their comrades on stretchers.

You saw them lying in their beds, each one on his back and a little on one side, and they have kept that position since they were admitted; it is the one in which they suffer least. Raising the bed-clothing, we see a slight bending of the body, towards the right side in No. 5, towards the left side in the others. I told them to lie straighter, squarely upon the back; they were not able to do so, and the attempts which they made caused much pain. I asked them to raise the heel of the injured limb from the bed. This attempt also remained unsuccessful and caused renewed pain, while the uninjured limb executed the little manœuvre perfectly.

You noticed how the shape of the injured thigh differed from that of the other one, how it is gathered up and twisted about its axis. You also saw that the foot, as well as the leg, lay on its outer side. Here then are two signs of fracture: deformity, and outward rotation of the limb.

On a superficial examination our eyes detect only a slight shortening; but if we stretch a string from the spine of one ilium to that of the other, we see that its direction is oblique with reference to the axis of the body, and that the iliac spine on the injured side is sensibly lowered, whence we conclude that, although the shortening seems slight, it is really greater than it seems.

Then stretching the string from the anterior-superior spine of the ilium to the external tuberosity of the femur, and then to the external malleolus, and then making the same measurements upon the other side, we find that the injured limb of No. 5 is shortened at least an inch and a quarter; then measuring both limbs from the spine of the ilium to the internal malleolus, we find the same difference; there is then a very considerable real shortening, and as the patient assures us that he did not limp before his accident, this sign has a great value.

I then sought for abnormal mobility by two manœuvres. You saw that one consisted in raising the heel and the leg with one hand whilst the other was placed transversely over the middle and anterior portion of the thigh. Then giving a lateral movement to the limb with the first hand, I saw that the lower part of the thigh moved with the leg, while the upper part remained immovable, and I felt with my second hand that no movement which might have escaped detection by my eyes was transmitted to the upper part, and that the hinge or centre of movement of the movable part was a little below the middle of the femur. The same manœuvre executed upon No. 11 showed us that his fracture was situated at the centre of the bone, and in No. 46 the femur was broken high up, just below the great trochanter (Malgaigne's sub-trochanteric fracture).

To seek mobility by the second manœuvre, I passed my hand, by depressing the bed, under the injured thigh, and then raised it a little. By this movement the thigh was bent at the point of fracture, forming a projecting angle in front, while the same experiment repeated upon the uninjured leg did not give this result.

During these two manœuvres I had also felt crepitation. I am therefore perfectly sure of the lesion; our patients have fractures of the thigh, and it is not necessary to prolong the examination to make the diagnosis.

Our three patients have presented the same symptoms; but the prominence formed by the overriding of the two fragments of the femur seemed to us much higher in No. 11 than in No. 5, and much higher still in No. 46. In all the pain is greatest over the point of this prominence.

I have called your attention especially to the deformity of the thigh; but the knee also is increased in size. It is appreciable by the eye and by direct measurement. Passing a string around the condyles of the femur and the middle of the patella, I find that in one patient the circumference of the knee upon the injured side is two-fifths of an inch greater than on the other, and in the other two patients the difference is three-fifths. Suspecting the presence of liquid in the articulation I grasped both its sides with my left hand, a little above, and with my right hand, a little below the patella, and then without changing the position of the hands I brought my right index finger upon the centre of the patella which yielded under the pressure and was forced backwards against the condyles of the femur. During this manœuvre I distinctly felt the other fingers raised up, which could be due only to the presence of liquid. Our three patients then have a considerable effusion within the knee-joint, and it is greatest in the one, No. 5, whose fracture is the lowest. Perhaps you think that this lesion is due to a concomitant contusion of the knee produced by the violence which caused the fracture.

It is not so; first, you find upon their knees no sign of a contusion, and then, our internes, who saw them when they were admitted yesterday, an hour or two after the accident, will tell you that the effusion did not then exist, and it is very probable that you will find that No. 11's effusion, which is very small to-day, will increase considerably to morrow and the following days, with more pain on pressure.

It is too evident that the articular lesion which has so soon followed these fractures of the femur has not been caused by the prolonged immobility which Tessier, of Lyons, has indicated too absolutely as the cause of consecutive arthritis. It is the consequence of an early arthritis which might have been due to a concomitant contusion of the knee, but which, in these cases, seems to me to have been caused by the extension to the synovial membrane of some of the lesions belonging to the injury of the bone. In an autopsy of a recent fracture which I made in December, 1868, I found an infiltration of blood which, starting from the interfragmentary space, extended almost into the sub-synovial tissue of the knee, although the fracture was in the middle third. During our late war we had occasion to notice this same sub-synovial infiltration of blood, which M. Berger, Demonstrator of Anatomy, has further studied and confirmed by experiments upon animals, in a work not yet published.

I cannot say whether this dropsical arthritis, occurring upon these three patients soon after the accident, and which I have found during the last twelve years upon nearly all the patients whom I have treated for fracture of the thigh, is always the consequence of an infiltration of blood into the sub-synovial connective tissue, or whether it is not due in certain cases exclusively or principally to the propagation towards the articulation of the violent phlegmasia starting from the seat of the fracture. I only call your attention to this early arthritis, because, without being dangerous, without interfering with consolidation, it explains the principal origin of the articular rigidities which are one of the principal causes of the trouble in the movements after fractures of the thigh.

I looked to see if pressure was painful and if there was an appreciable swelling over the articulation of the hip. I found nothing there, and cannot say that there is a coxo-femoral as well as a femoro-tibial arthritis.

Moreover, it is to be noticed that the articulation placed above the fracture, in this bone as in others, is more rarely affected with consecutive inflammation than is the articulation below. I do not say that it is never affected, for I have found in several patients after fracture of the thigh a prolonged stiffness of the hip which indicated the consequences of an arthritis. I only say that this complication is not common, while arthritis of the knee is almost constant.

We noticed at first sight that the thigh was gathered up on itself like a leech, and that it seemed to swell out forwards. Let us try to interpret this disposition and to determine what ought to be the reciprocal position of the fragments. It is clearly understood that the fragments have undergone a rotary displacement, for the leg and the knee lie upon their outer side, and an angular displacement for the centre of the thigh is very prominent. Moreover, since the limb is shortened, there is a third kind of displacement, that is, an overlapping or longitudinal displacement together with a transverse displacement. Shortening exists always in the adult, and can be explained, as our predecessors understood, by the obliquity of the fracture; but it is also found in cases where the fracture, instead of being purely oblique, is toothed, with or without fissure, described by Gerdy as spiral fracture. It is produced when the fragments, whatever may be the direction of the fracture, no longer meet one another directly, and it is due to the action of all the muscles of the thigh which draw the lower fragment upwards and inwards, and sometimes backwards, causing it to overlap the upper one more or less, and in any case, to an extent which will increase during the following days, as it will be easy for you to see in these patients. At the same time the upper fragment is drawn upwards and outwards by the psoas. We found the shortening in Nos. 5 and 11 to be an inch and a quarter, and in No. 46 it was about two inches and a quarter. This difference is due to the latter fracture being trochanteric, that is to say, situated much higher than in the two other cases, and to the upper fragment being drawn much more forcibly forwards and outwards by the psoas, while the lower one is drawn upwards, inwards, and backwards. In this case then there is not only overlapping, but also great angular displacement which increases the shortening.

The *prognosis* in these cases is not bad, in the sense that they will recover, but *they will probably not recover without shortening.* You still see in our wards a fourth patient who has been there for seventy-five days. He is beginning to walk, but his right thigh is two inches shorter than the left. Well, there is reason to fear that, notwithstanding all our care, those of whom I am speaking to-day will retain a shortening, and it is even probable that this shortening will be a little greater at the end of the treatment than it was after the limb had been set. That unfortunately is the rule in fractures of the thigh in the adult.

It is true that it will be corrected in part by the instinctive lowering of the pelvis, and in part by wearing a heel a little higher upon the injured side, and that ultimately the deformity will scarcely be perceived.

Does that mean, in a word, that these patients will be lame?

Here, gentlemen, we must distinguish between the primitive or temporary, and the definitive results.

As for the first, there is no doubt; after the seventy-five or eighty days of confinement to the bed which are generally necessary for the consolidation of fractures of the shaft of the femur in adults, we shall allow the patients to walk. But they will only be able to do so with the aid of crutches, which they will continue to use for two, three, or four months. Three principal causes will prevent their doing otherwise; these are:—

1st. The difference in the length of the limbs, of which we have just spoken.

2d. The feebleness of the muscles resulting from the prolonged inaction, and from the slight atrophy which broken limbs always undergo, as I often have occasion to tell you (see page 71).

3d. The persistence, in the chronic condition, of the dropsical synovitis of which I spoke a moment ago. For if this synovitis resembles the others of this kind which I have seen, it will not be of short duration, as it is in children. It will continue during the whole time of treatment, and for a so much longer time thereafter as the patients are older. Thus I expect it to last much longer in No. 11, who is 56 years old, than in the two others, one of whom is 35, the other 41 years old.

After having walked upon crutches for a time, which will vary, according to the subjects, from two to six months, our patients will begin to use a cane, and will certainly limp very distinctly for several months. I estimate at about a year the time that is necessary for the walk to become what it can be and will be during the rest of the life. It is at the end of that time that we shall be able to determine what I called a moment ago the definitive results. I expect them to vary in these three cases.

No. 5, who is 35 years old, and whose fracture is in the middle of the femur, will undoubtedly limp very little, perhaps not at all, notwithstanding the shortening of from one to one and a half inches, which I presume he will retain, and this absence of limping will be due to this, that his muscles, although remaining slightly atrophied, will have recovered enough energy of contraction to correct the disadvantage resulting from the shortness of the lever. It will also be due to the fact that this shortness will not be excessive, and that the knee will have recovered all its movements, the synovial membrane not having retained any consecutive rigidity.

In No. 11 I expect the lameness to be more distinct, not on account of the shortening, which I presume will be about the same as in No. 5, but because he is older. For I fear that the muscles, after their prolonged inactivity and in spite of the integrity of their innervation, will not recover their former contractile energy; and I am also less certain about the consequences of the arthritis; for experience has taught me that subacute, spontaneous arthritis, passing to the chronic condition, as arthritis following fractures almost always does, is followed by a synovial rigidity of which we see frequent examples in fractures of the lower extremity of the radius. Now these rigidities, as I have often told you and shall tell you often again, are more marked and permanent as the subjects are older.

Finally, in No. 46, the one who has the sub-trochanteric fracture, I expect, as a definitive result, a very marked lameness, partly on account of muscular weakness, partly on account of a certain degree of synovial rigidity which may remain, but chiefly on account of the shortening which is now two and a half inches, and may ultimately be three or three and a half, since, during the whole inflammatory period, that is to say, so long as the fragments are not united by a substance possessed of a certain solidity, the muscular tonicity will continue to act and will constantly increase the shortness.

My fear will not be justified in this patient if I can obtain by continuous extension a notable diminution of the shortening.

But I argue on the supposition, which may become a reality, that the apparatus for making extension will not be supported, or, if supported, will be insufficient.

Treatment.—In these three patients we have to meet the same indications as in all other fractures: make and maintain reduction.

To make the reduction, you saw to what manœuvre I had recourse: an assistant, placed on the injured side, pressed firmly with both hands upon the patient's iliac spines so as to fix the pelvis firmly. Another one, placed at the foot of the bed, grasped the foot as in fractures of the leg. He first straightened the foot which was rotated outwards, then by drawing it towards himself he made what is called extension, while the first assistant made counter-extension. Meanwhile I, standing beside the limb, tried with both hands to correct the deformity, pressing the upper fragment inwards and the lower fragment outwards. These two manœuvres caused great pain, and you saw what results I obtained.

The rotary displacement (rotation of the foot outwards) was perfectly corrected in all three patients. The angular displacement was also corrected in Nos. 5 and 11, but only imperfectly so in No. 46, who has the sub-trochanteric fracture, and in whom, as you know, the angular displacement is much greater on account of the powerful action of the psoas, which is inserted into the upper fragment and draws it forwards and outwards, and whose contraction it was impossible for us to overcome entirely.

But in no one of the patients were we able to correct the longitudinal and transverse displacements, displacements closely allied with one another, or of which the second, at least, is essentially dependent upon the first. For you understand perfectly that the contact of the lateral faces of the two fragments can only end when the femur has recovered its length.

I mention the impossibility of correcting the shortening by the manœuvre of simple reduction, because many of your classical authors do not lay sufficient stress upon this impossibility. Some of them speak of reduction as a thing which always succeeds if properly made; others intimate that in a certain number of cases the only indication is to correct the angular and rotary displacements, and that nothing is to be done about overriding because it does not exist. This is perhaps true for some children, but it is not exact for adults. In them fracture of the shaft of the femur is always accompanied by overriding or, what amounts to the same thing, shortening or longitudinal displacement, and if in some cases it has not been recognized, it is because the surgeon has not measured the limb and has been deceived by the inclination of the pelvis which makes both legs seem of the same length. Not only is there shortening in fractures of the shaft of the femur in adults, but it cannot be corrected by ordinary simple reduction, such as is made with the hands, according to the indications of the authors, and during the first days which follow the accident.

Can it be afterwards corrected by other means? We shall examine that question in a moment.

But I wished first to formulate, from what has occurred in our three patients and from what I have seen in many others, these propositions: 1st, that the immediate correction of the shortening by the hands alone, and without the aid of anæsthesia, is impossible in most cases, and it is through prudence that I do not say in all cases, of fracture of the thigh in adults; 2d, that if this correction can be obtained early, it is by anæsthesia. It may be obtained tardily and slowly by the prolonged use of continuous extension combined with that of retention, but unfortunately this method encounters difficulties of execution which make us fear we shall not reach the desired end.

I now resume the history of our three patients, and I say that in all three I made the ordinary reduction without obtaining a satisfactory result so far as the shortening was concerned. But there is one of them, No. 5, the youngest of the three, and the one who seemed to me to be the least affected with alcoholism, upon whom you saw me use chloroform the next day and renew the attempt at reduction. A Scultet apparatus, arranged like the one for the leg, but extending from the groin to the foot, had been previously placed below the broken limb, and while an assistant held the foot firmly and was ready to make extension, and another pressed upon the pelvis for counter-extension, the patient was brought under the influence of chloroform with the ordinary precautions, and especially the ordinary intermittences. We had some difficulty to obtain resolution, and it was preceded by a period of great agitation, during which the patient moved the broken limb as freely as the other one, caused the upper fragment to project under the skin, and increased by the violent contraction of his muscles all the displacements with which you are acquainted. Standing on the outer side I had to hold the fracture very firmly with both hands to oppose this powerful muscular action, and you saw, nevertheless, that at certain moments my opposition was overcome, and I was obliged to ask another assistant to help me hold the fragments. Finally quiet was obtained, the muscles became soft, and I made the reduction. I measured the limb rather rapidly, and it seemed to me that there remained barely an eighth of an inch of shortening; I then applied the Scultet apparatus.

In the other two cases I did not have recourse to anæsthesia to make the reduction, and for these reason: one of them, No. 11, is a teamster more than 56 years old, and greatly given to drink; now you know that in such patients muscular resolution is difficult and slow to obtain. It is necessary to give a great deal of chloroform and consequently expose the subjects to the dangers of this agent, dangers which exist especially during the days which follow great traumatic lesions. It is also necessary to pass through a much longer and more intense period of excitation, during which perforation of the skin by the fragments is not impossible. This accident happened to one of my patients in the Hôpital Cochin in 1858. Two of us held the fragments as firmly as possible, but the patient struggled so violently several times that the limb slipped through our hands and a point of the upper fragment pierced the skin. This perforation healed by first intention, thanks to the occlusive dressing immediately applied. But it is none the less true that this possible complication and even the danger of increasing the tearing of the muscles and periosteum during these struggles, necessitates a certain reserve in the use of anæsthesia in cases of this kind, and are even a contra-indication in patients who are rather old and alcoholic.

The other patient, the one with the sub-trochanteric fracture (No. 46), has so much shortening that I could not hope to obtain a permanent diminution of it by means of anæsthesia. The little that I might have obtained would certainly not have lasted, and therefore it was useless to expose the patient to the risks of chloroform.

Let us now examine the second question, that of reduction. How shall these fractures be confined and immobilized, and what precautions shall we have to take during this retention?

For two of the patients, Nos. 5 and 11, the problem is already in great part solved. I have applied the Scultet apparatus, to one of them after having made reduction during anæsthetic sleep, to the other without this preliminary precaution. I took care—after having wrapped the leg in the compresses and bands which form the inside of this apparatus, and after having applied a very long external cushion of chaff which reached from above the crest of the ilium to below the edge of the foot, after having also applied internal and anterior cushions, then the three splints corresponding to these cushions, and after having closed the femoral and tibial portions of the apparatus with the buckled straps—I took care, I say to complete the dressing with a body bandage applied about the pelvis and sewed fast to the outer envelope of the Scultet apparatus, and then placed the patients on the mechanical bed.[1] I shall not use the water-bed unless sores appear on the sacrum and make me fear an eschar.

I have also told the patients not to sit up in bed, to eat while lying down, and to move as little as possible. I shall prescribe in a few days one or two drachms of the phosphate of lime daily.

I shall renew the apparatus every third or fourth day during the first fortnight, and each time that I do so I shall make fresh attempts to overcome the shortening. I do not hope to diminish it very much by these repeated reductions, but I shall at least be able to oppose the increase which tends to take place during the first two or three weeks.

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[1] See page 83.

After the twentieth day I shall renew the apparatus only every eighth or tenth day; I shall only have to tighten the outer straps when I find them relaxed.

On the sixtieth day I shall see if any mobility remains, by making with precaution the manœuvres which you saw me employ the first day to detect this sign. If I no longer find mobility I shall leave the limb uncovered and tell the patient to make a few movements of his toes, foot, and knee. I shall myself communicate some from time to time to combat rigidity of the articulations, especially of the knee. If I still find mobility, I shall reapply the apparatus and leave it, renewing it from time to time, until consolidation is obtained.

At what period will I allow the patients to get out of bed and walk with crutches? I shall wait at least until the eightieth day, and probably until the ninetieth. For one of the things which I fear, and which should be most feared after fracture of the thigh, is the breaking of the callus by a fall, even a very simple one, while walking or standing. I have seen these iterative fractures on the seventieth and seventy-fifth days, in patients who had left their bed too soon, in opposition to my advice, and then it required three months more to get consolidation.

In general, I let the patients get up only after I have demonstrated by several trials the absence of abnormal mobility and the patient's ability to raise the heel five or six inches from the bed without bending the knee.

You will perhaps ask why I have given the preference to the Scultet bandage, with the limb extended; why I did not choose, as has been recommended, and as you have seen me do, the same apparatus with the limb bent upon a double inclined plane; why I do not speak of an immovable bandage, and why I do not use continuous extension for all three of our patients, as I am going to do for the last one of them.

These are my answers:—

1st. As for the Scultet apparatus with the limb in semi-flexion, I recognize in it one advantage, which is that this position of the knee seems to cause a less rebellious arthritis and less consecutive rigidity.

Nevertheless the fact is not yet established by sufficiently numerous observations, to serve as a basis of treatment; and, on the other side, I have often seen this position of semi-flexion cause intolerable pain in the calf of the leg, so that the inclined plane had to be removed and the limb placed in extension. Indeed, in two of my patients, this compression of the calf of the leg was followed by obliteration of the popliteal vein and painful œdema of the leg.

I know that this obnoxious compression can be avoided by using, instead of the wooden inclined plane, one made with bags of chaff, as Dupuytren and Sanson did. But I saw that these bags yielded readily, and that to replace them and re-establish the semi-flexion the limb had to be moved three or four times every day, which is a disadvantage. And as finally consecutive rigidity is not completely prevented by semi-flexion, and as that which follows extension disappears, I do not see any real utility in adopting semi-flexion as an absolute rule.

2d. I do not intend to employ an immovable apparatus, because it would no more prevent shortening than will the one which we have chosen, and because it would perhaps permit the reproduction of angular displacement. For sixty to eighty days of immobility are necessary. If the limb was enveloped in a plaster, silicated, or dextrinated bandage, the application would be made by the fifteenth or twentieth day; for, if applied later, it would be of no use. It would have to remain in place for from forty to fifty days. Now during this time the limb would diminish in size, a gap would result, and the fragments, being less well supported, might undergo longitudinal displacement. I much prefer the movable bandage, which I tighten when relaxed, and which I renew entirely from time to time. I thus support the fracture much better, and avoid more surely very vicious consolidations.

3d. Why not an apparatus to make continuous extension? Theoretically, this mode of treatment is reduction, for if we cannot, with our hands and in a single attempt, overcome the resistance of the muscles which produce the shortening, it is logical to hope that this resistance can be conquered by a long-continued mechanical traction. That is the thought which guided Brunninghausen, Desault, Boyer, Baumers, F. Martin, and all the surgeons who, before and since their time, have invented apparatuses for continuous extension for the treatment of fractures of the femur.

Notice this well, gentlemen:—

The idea of continuous extension is very rational; many apparatuses inspired by this idea have been invented. None of them thus far have been able to take definitive rank in practice. From time to time a new one is invented because the inconveniences and insufficiency of the others are recognized.

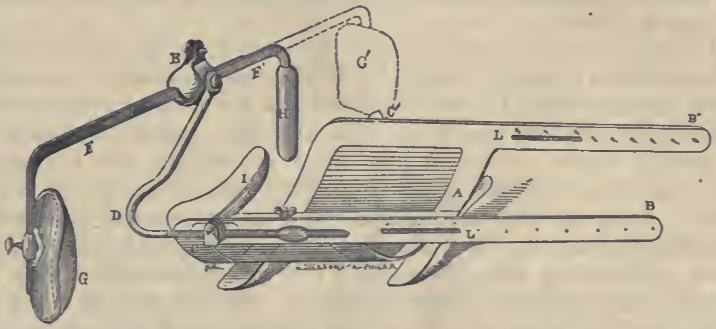
Whence comes this difficulty of making the practice accord with the theory? It comes from this, that to overcome the very energetic muscular resistance against which they have to contend, these apparatuses for continuous extension have, on the one hand, to permanently exert strong tractions which are in themselves painful, and, on the other hand, to apply the extension and counter-extension at certain parts of the limb where the pressure causes pain, and sometimes eschars. That which has prevented, then, the use of these apparatuses from becoming general is found first in these two results: pain and eschars.

There is also a third reason; in many cases, after having subjected the patients to these inconveniences, the shortening has persisted. Those who have not given close attention, and who have not measured, may have been deceived by a lowering of the pelvis which hid the real shortness; but those who measured have almost always found a shortening of from one to one and a half inches, and have been obliged to recognize that by these sufferings, supported for several weeks, they have barely gained from one-quarter to three-quarters of an inch.

There is also a fourth reason. When the patients are young, the shortening, if not more than one and a half inches, does not make them limp permanently. Why then expose them to the pains of continuous extension? When they are old the shortening will certainly make them limp, but they will also be much less able to bear extension; they will have eschars more easily, and, in consequence, incur greater danger. Is it not better, then, to be satisfied with simple retention, which will leave a little more shortening, but will give more tranquillity to the patient and surgeon?

Such are the reasons, gentlemen, which have prevented, and will long prevent, the use of apparatuses for continuous extension from becoming general in practice.

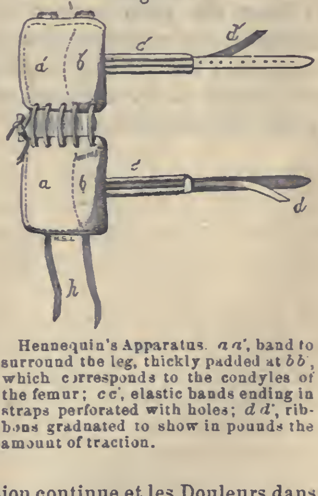
Fig. 17.



Hennequin's Apparatus. D, bent rod which can be placed on either side of the trough A; E, clasp, through which slide two rods, one of which bears the iliac pad G, the other, the pubic pad H; I, ischiatic pad in the form of a crescent.

But these reasons are not sufficient to cause us to reject them absolutely. I understand why they should try continuous extension in cases where the shortening is very great; but it should be done only on the condition of watching the apparatus attentively, so as to avoid eschars and to diminish as much as possible the pain caused by the tractions. These are the ideas which have guided me in the treatment of our last patient. I might have used Baumer's method, in which counter-extension is made upon the pelvis at the genito-crural fold, or that which is known as the American splint, in which the axilla on the side corresponding to the fracture is used for this purpose; but I preferred the apparatus now more generally used in the Paris hospitals (Fig. 17), which was invented by Dr. Hennequin.[1]

Fig. 18.



Hennequin's Apparatus. *a a'*, band to surround the leg, thickly padded at *b b'*, which corresponds to the condyles of the femur; *c c'*, elastic bands ending in straps perforated with holes; *d d'*, ribbons graduated to show in pounds the amount of traction.

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[1] Hennequin, Quelques Considerations sur l'Extension continue et les Douleurs dans la Coxalgie (Archives Générales de Médecine, Dec. 1868, à Fevrier, 1869).

I shall not give you a minute description; it is sufficient to show it to you, and to recall in a few words its principal points and advantages. It consists of a trough in which the thigh rests, allowing the knee to be flexed, the leg being outside the bed and the foot upon a chair.

Counter-extension is made by means of pressure exerted—1st, upon the ischium by a curved pad (I, Fig. 17), attached to the upper part of the trough; 2d, upon the outer iliac fossa by another pad, G; 3d, upon the horizontal ramus of the pubis by another pad, H. The two latter are attached to the rest of the apparatus by two rods sliding through a hinged clasp, E. Counter-extension is made by means of the bracelet represented in Figure 18, which surrounds the thigh, and from which extend two elastic bands, *c d*, *c′ d′*, a sort of artificial muscle, which are attached to buttons on the two long lateral parts of the main apparatus.

I shall apply this apparatus about the twelfth or fifteenth day, after the inflammatory period is ended. If things go on as in three other patients upon whom I have had occasion to employ this mode of treatment, you will see that I shall have to change the situation of the pads several times, so as to render them endurable; that the patient will be tormented by the pains caused by extension; that it will be necessary, from to time, to diminish the traction exerted by the elastic bands; and finally, that the foot and lower part of the leg will become œdematous, notwithstanding the roller bandage which will previously have been placed about them. If the patient is not too sensitive, and if he bears the pain bravely, we shall perhaps succeed in curing him without shortening, or with a shortening of about an inch. But if the pain is intolerable, and if, to diminish it, we are obliged too often to loosen the elastic bands, the result will be less fortunate, and there will remain a shortening of two inches or more. Everything here depends upon the degree of sensibility and energy of the patient; and it is precisely because we find only few who are able to bear the pain caused by this and by every other apparatus for continuous extension, that it cannot be adopted in all cases. Above all, do not try it upon children, women, or old people; for to the pain you might easily add eschars, which would increase the suffering and might be dangerous.

LECTURE XXI.

FRACTURES OF THE NECK OF THE FEMUR.

Two fractures of the neck of the femur in old women—Difficulty of determining upon what point the fall occurred—Functional and physical symptoms—Impossibility and uselessness of the diagnosis between intra- and extra-capsular fractures—Astley Cooper's error as to the influence of age—Obscurity of the authors upon the differential signs—Be satisfied with presumptions upon the seat of the fracture as upon the penetration—Simple treatment in all cases—Indication to avoid pain—Rejection of apparatuses for continuous extension.

GENTLEMEN: We have at this moment in ward Ste. Catherine two old women, one of whom was brought to us the day before yesterday, the other a week ago. Both of them fell while walking, without great violence.

The first (No. 6), 69 years old, slipped in her room, and, after several efforts to keep her balance, fell upon the right side.

The second (No. 20), 71 years old, made a misstep in the street and fell upon her left side.

I asked them particularly what part of their body received the force of the fall; they answered that it was the side, and indicated with the hand, the one more especially the hip, the other the hip and buttocks. But both showed a certain hesitation in it, and said they did not know very well, but that they thought they fell in such or such a way.

However that may be, neither was able to get up and walk, and they were brought here upon stretchers.

On examining them we find in both the following symptoms:—

1st. *Functional Symptoms.*—Both suffer when they try to move in bed. If the hips are raised for the purpose of passing a bed-pan, they cry out; when not moved they suffer little. The one who has been here for a week suffered during the first two nights, but scarcely at all now. The one who was admitted the day before yesterday suffers a great deal, and had a bad night on account of the pain.

I told them to raise the foot from the bed; neither one was able to do so. No. 6 took her thigh in both hands and raised it, but at the same time she bent her knee, and her foot slid along the bed without being raised above it. No. 20, who suffers more, was able to make no movement.

Both of them have an imperfectly circumscribed swelling of the upper part of the thigh; the one who was admitted most recently has an extensive ecchymosis in the trochanteric region.

2d. *Physical Symptoms.*—I called your attention first to the attitude of the patients. They were lying upon the back, and a little on the painful side, and begged earnestly not to have the position changed. The injured limb was rotated outwards, so that the outer edge of the foot rested upon the bed, and the heel corresponded to the space between the internal malleolus and the heel of the other foot.

The better to appreciate this attitude, I persuaded the two patients to allow themselves to be placed flat upon their backs, and then I showed you that the rotation of the limb outwards persisted, and that there was also a notable lowering of the pelvis. For, stretching a string from one spine of the ilium to the other, I showed you that its direction was oblique with reference to the median line of the body, the end on the injured side being half an inch lower than a line crossing at right angles from the other spine.

Finally, there is in both a shortening which can be seen and measured; it can be seen, because the heel of the injured side is clearly higher than the other; and by measuring the distance between the spine of the ilium and the malleoli on each side, I find a difference of about three-quarters of an inch in No. 6, and one inch in No. 20. I say about; for whatever care you may take, it is difficult to place the measure so accurately upon the different points as to be sure that you do not make a mistake of a line or two. But the important fact is to determine the existence of shortening; now, it certainly exists here, and the measurement shows it to be a little greater than it seems. You understand why; the pelvis is inclined, as it is in almost all painful diseases of the hip and of the upper part of the thigh, and this inclination hides part of the shortening.

I did not look for either mobility or crepitation; for, gentlemen, with the signs which I have just pointed out, doubt is not possible. These two women have fracture of the neck of the femur.

A simple contusion might indeed cause the trouble in the movements and the pain which we find here, but it would not cause rotation outwards and shortening. We could be mistaken only if the contusion happened to a patient who, for a long time previously, had had dry arthritis or *morbus coxæ senilis*, which had caused rotation outwards and shortening. It was to guard against this error that you heard me ask if they had limped or suffered in the hip for several years, and it was because they answered negatively that I do not have to believe this is a fresh contusion superadded to an old dry arthritis.

Nor have you reason to think of a traumatic dislocation. For, in addition to the fact that dislocation is rare in old people, and that it is produced by a fall from a high place rather than by causes so slight as those which have intervened here, we do not find the symptoms of the most frequent, the iliac, dislocation, since in it the rotation is inwards, not outwards. Supra-pubic dislocation is the only one which is accompanied by rotation outwards and shortening, and it is easily recognized by the prominence formed by the head of the femur as it lies upon the pubes.

We have decided now the most important point of the diagnosis. These patients have fracture of the neck of the femur.

But there is another point which, if I turn to the descriptions of our best authors, ought also to have a certain clinical importance. Is the fracture *extra capsular*, *intra-capsular*, or *mixed*, that is, both intra- and extra-capsular?

If you read the works of Astley Cooper and Malgaigne you will find different chapters for extra- and intra-capsular; if you read those of Vidal de Cassis and Nélaton you will not find, it is true, a separate description of the two varieties, but they insist so strongly upon the differences and the diagnosis that one ought to conclude in the utility and possibility of a differential diagnosis.

I see, with pleasure, that M. S. Duplay[1] has not followed the same road, and passes over in silence the diagnosis of intra- and extra-capsular fractures. I like to think that this is due to my clinical lessons at La Pitié, in which he heard me develop the idea that a rigorous diagnosis between extra- and intra-capsular fractures is both impossible and useless. Impossible, because the differential signs given by the authors are inexact or cannot be detected upon the living subject. Would you like the proof? Examine any one of the differential points given by A. Cooper and Malgaigne.

Astley Cooper insisted upon one means of diagnosis, which, if it was true, would be very convenient. He said: Almost all fractures of the neck of the femur, after 50 years, are intra-capsular, and before 50 years, extra-capsular; and he adds in proof of this assertion, that of 225 persons over 50 years of age, in whom he found fracture of the neck of the femur, in only two was it extra-capsular; in the 223 others the fracture was intra-capsular. Our two patients, being more than 60 years old, should therefore have intra-capsular fracture.

Astley Cooper here fell into a great mistake, from which he drew, fortunately, an excellent therapeutical conclusion. I explain this error by these two circumstances, that he scarcely found in his autopsies anything except intra-capsular fractures, and that he found them in old people. For, in his time, they did not very well understand fractures with penetration, they did not know that in order to detect them upon the cadaver it is necessary to split the neck of the femur vertically; those who examined the pieces without taking this precaution, failed to recognize extra-capsular fractures. Astley Cooper then reasoned thus: When I make autopsies of fracture in old people, I find only intra-capsular fractures; that is undoubtedly because they are peculiar to old people; and without occupying himself with other differential signs upon the living subject, he thought that age was sufficient to establish the diagnosis.

But facts soon appeared to show that Astley Cooper was mistaken. Bonnet (de Lyon), Rodet, and others after them, found in well-conducted autopsies with vertical section of the neck, extra-capsular fractures with or without penetration, so that to-day it would be difficult to say whether, after 50 years, the intra- or the extra-capsular fractures are most frequent.

A word, now, upon some of the differential signs given by Malgaigne in the table placed at the end of his paragraph upon fractures of the neck of the femur.

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[1] Follin & Duplay, Traité de Pathologie externe, tome ii.

1st. The intra-capsular, he says, is caused by a fall upon the foot, or the knee, or the buttocks; the extra-capsular, by a direct blow upon the great trochanter. But you will not find out from my poor old women, and you will never find out from other old people who have broken the neck of the femur, whether they have fallen upon the great trochanter, or upon the buttocks. These two regions are too near each other for the patient to be able to say whether it was upon the one or the other that he fell; and suppose that he fell upon his feet or knees—as, after such a fall, there is almost always another backwards and sideways—how are you to know whether the fracture was made before or after the fall upon the side?

I should also like to know how often the diagnosis has been verified upon the cadaver. I doubt if it has ever been done. Malgaigne, in writing these lines, was evidently inspired by a work of M. Rodet,[1] who had published this opinion after experiments made upon plaster femurs. A piece of plaster in the shape of a femur does not at all resemble a cancellous bone whose compact tissue has been thinned, and whose cells have been enlarged by senile rarefaction; for it is due to variations of resistance in different points of its length resulting from these anterior lesions, that the femur, after a blow, yields in one point rather than in another.

2d. In the intra-capsular, adds Malgaigne, there is little swelling, no ecchymosis; in the extra-capsular, much ecchymosis. I complain here that the author did not contrast the swelling in the one with the swelling in the other. Undoubtedly he was embarrassed by the difficulty of being precise. As to the ecchymosis, the word *much* is very elastic. Has our second patient much or little? I could not say, and in any case, it is not impossible that intra-capsular fracture should be accompanied either by great contusion of the soft parts, or by a tearing of the bone which might cause considerable ecchymosis.

You see then that the ecchymosis cannot supply a serious element of the diagnosis.

3d. In the intra-capsular, continues Malgaigne, there is pain near the insertion of the psoas; in the extra-capsular, the pain on pressure is over the great trochanter.

Gentlemen, it is not possible to make pain on pressure a means of diagnosis, for two reasons: first, because if the pressure is slight or moderate it causes no pain, even where there is a fracture not far from it, and because if it is great, it may cause pain itself, and not by transmission of a shock to a neighbouring fracture; secondly, because, supposing the pain on pressure to be due to a fracture, it may be caused by fracture at the base as well as in the middle of the neck.

4th. In the intra-capsular, still according to Malgaigne, the shortening is limited to one and a quarter inches at the most; in the extra-capsular, the shortening is from one-quarter of an inch to two and a quarter inches. Well, we have here four-fifths of an inch, and an inch; consequently we are within limits which allow us to believe in one as well as in the other.

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[1] Rodet, Des Moyens propres à distinguer les différentes Espèces de Fracture du Col du Fémur (Thèses de Paris, 1844).

I do not wish to carry this critical examination any further. Malgaigne gives us four more differential signs, all of them as difficult to determine as the preceding ones, and from no one of which can the clinicist draw a rigorous conclusion, and do not think that by grouping them all you can reach a conclusion. For, in this group you have a certain number which are as much in favour of one as of the other variety.

Furthermore, that which obliges me to retain and allow you to retain no illusion upon this point, is that pathological anatomy has often shown fractures which were at the same time extra-capsular and intra-capsular; by what signs are they to be distinguished? No one has given them, and yet it is not logical to give the means for recognizing the intra- and extra-capsular, and not give the means for recognizing a mixture of the two.

The truth is that upon this part of the diagnosis we may reach presumptions, but never a certainty. Thus, in our first patient, I may presume the fracture is intra-capsular because there has been no ecchymosis and the pain has been moderate. In the other, I may presume that the fracture is extra-capsular, because there is an ecchymosis, the swelling is considerable, and the pain more severe. But, the reasons which I give in favour of these presumptions might be completely contradicted by an autopsy, or the fracture might prove to be a mixed one.

I said also that this rigorous diagnosis between an extra- and an intra-capsular fracture was useless for the prognosis and treatment, and consequently useless from a practical point of view.

I say that it is useless for the prognosis. Here I find myself in the presence of two contestable opinions which were advanced by Astley Cooper, and upon which he established his distinction between extra- and intra-capsular fractures. The first was that intra-capsular fractures did not consolidate, or consolidated only by a very thin fibrous callus; the second was the conclusion, or rather the intimation (for Astley Cooper did not express himself categorically upon this point), that the patients were condemned to an inevitable infirmity by the fact of this entire or partial failure to consolidate. You see the utility which this question of diagnosis would then have for the prognosis.

This one of our patients, who seems to me to have an intra-capsular fracture, would not get consolidation, would henceforth walk only with the aid of crutches, or at least with a cane and with great difficulty, would be, in a word, condemned to an infirmity, while the other one, who seems rather to have an extra-capsular fracture, would, unless I am mistaken in the diagnosis, have bony consolidation and walk very well. And as for the treatment, you see at once the consequence; if intra-capsular fracture does not consolidate, it is useless to treat the patient by confinement to the bed intended to assure the immobility which is a necessary condition to the formation of a regular bony callus.

Gentlemen, it is very true—and the facts invoked by Astley Cooper and before him, it must be admitted, by other authors, especially by J. L. Petit and Boyer, are demonstrative upon this point—it is very true, I repeat, that intra-capsular fractures sometimes remain without consolidation, or heal only by means of an intermediate fibrous substance, for the following reasons: 1st. Because the upper fragment is short and no longer receives a sufficient quantity of nutritive material, since it is supplied exclusively by small vessels accompanying the round ligament; 2d. Because the materials of the callus are poured out into and lost in the articular cavity, as is the case in fractures of the patella. It is equally true that extra-capsular fractures, especially when accompanied by penetration, consolidate by means of a bony callus.

But besides these facts, which are common, there are many exceptions which do not allow us to establish absolute rules for the prognosis. Thus, certain intra-capsular fractures form a bony callus; Astley Cooper himself distinctly says so. These are the ones in which a considerable part of the periosteum has remained intact about the fragments, and, on the one hand, supports the vessels which feed the upper fragments, and, on the other hand, opposes the escape of the reparative materials into the synovial cavity. These are also the ones in which, notwithstanding the rupture of the periosteum, bony stalactites form at the edge of the fragments and unite them at some points, although inter-fragmentary consolidation is lacking. Furthermore, the interfragmentary fibrous callus, when it forms, is sometimes strong enough to give the neck of the femur as much solidity as if it had been bony. You see then that if, after an intra-capsular fracture, the bony or fibrous callus can be as solid as that of an extra-capsular fracture, there is no reason, so far as the prognosis is concerned, to maintain that the diagnosis would be of any great value. It would be if, to the knowledge of the precise seat of the fracture, we could add that of the other anatomical and physiological conditions, that is, the amount of periosteum that has been preserved, the aptitude for the formation of stalactiform prominences. Now, as to these points, no author has ever claimed to be able to make a rigorous diagnosis.

Moreover, it must not be believed that all extra-capsular fractures consolidate with a bony callus; in some of them also it remains fibrous.

I have seen two positive examples of this, and regret that I did not preserve the specimens. In both cases it was fracture with penetration, and the injury had been received six months before in one case, and eight months in the other. Taking the head of the femur in one hand and the shaft in the other, an abnormal mobility could be found, and one might have supposed that a bony callus united the fragments. But, to examine the mode of reunion, I made with a saw a vertical section through the bone, a section without which it would be impossible to exactly appreciate the condition of the parts. This section having been made, I first noticed the penetration of the upper fragment into the lower one, the complete disappearance of the bony substance that had been crushed, the diminution of the length of the neck in consequence of this loss of substance, and finally an irregular fibrous line of demarcation between the upper and lower fragments. This line was about one-fifth of an inch thick. Its tissue was quite dense and adhered firmly to the two fragments, so that the femur thus repaired was perfectly able to sustain the weight of the body. It is none the less true that the callus was fibrous as in many intra-capsular fractures. I proved this by macerating the piece for several weeks, at the end of which the fragments separated.

You see then there is nothing absolute, as to the method of consolidation, in one or the other variety, and we are authorized to-day to say that the rigorous diagnosis between them is not useful for the prognosis.

It might be, however, if the method of consolidation was the only means of explaining the ease or the difficulty of walking after fractures of the neck of the femur. For I could understand that one should say: the old man affected with intra-capsular fracture will probably never walk, because his consolidation will be insufficient, and *vice versâ* for the extra-capsular. But our anatomo-pathological studies have shown us that the difficulty in walking after this fracture, as after all those which are near articulations, depends greatly upon the consecutive arthritis and the diminished power of the muscles. All patients who have fracture of the neck of the femur have traumatic arthritis almost inevitably when the lesion is wholly or in part intra-articular; it is also very common, if not constant, in extra-articular fractures. How is it possible to prevent the articulation which is so near the solution of continuity from taking part in the consecutive phlegmasia? The intensity and the effects of this arthritis vary according to the subjects, and the varieties depend much more upon their idiosyncrasies than upon the seat of the fracture. At the beginning, then, it may be presumed with certainty that the patient will have an arthritis; it may also be presumed, on account of the age (fracture of the neck of the femur being, as you know, an affection of old people), that this arthritis will become an incurable dry arthritis, or if it does not pass to that state, it will leave for many months a painful rigidity of the synovial membrane. I will admit, if you wish, that these results are more probable after intra-capsular than extra-capsular fractures; I wish to establish, only, that they are possible after both, and that from this point of view also, a perfect diagnosis would not have the value which is claimed for it.

Under the supposition that our second patient has an extra-capsular fracture, I ask myself if this fracture is with or without persistent penetration. For the works of Hervez de Chegoin[1] and Alph. Robert[2] demonstrated plainly that in fractures of the neck of the femur, and especially in those at the base, or the extra-capsular ones, the upper fragment might penetrate the great trochanter and split it, in which case fracture of the neck is complicated by fracture of the great trochanter. They also showed that, without splitting the great trochanter, the upper fragment might lodge within it, crush its cancellous tissue, and remain implanted there (Fig. 19); an important fact, for it leads to this conclusion, that there are fractures of the neck of the femur in which attempts at reduction cannot succeed, or if they succeed are followed by a prompt return of the displacement. It is the same here as in fractures with crushing of the lower extremity of the tibia and of the lower extremity of the radius. From the moment when the pressure exerted by one of the fragments has hollowed out the other by crushing it, the resultant gap is necessarily filled by the muscular action which draws the fragments into contact. If they should succeed in re-establishing the natural length and direction of the limb, it would be by removing the fragments from one another and substituting for their contact an empty space which cannot persist, and towards which the pelvi-femoral muscles would very soon draw the lower fragment. Moreover, under such circumstances the interlocking of the fragments is such that our efforts cannot disengage them, and for consolidation their connection is rather advantageous than not.

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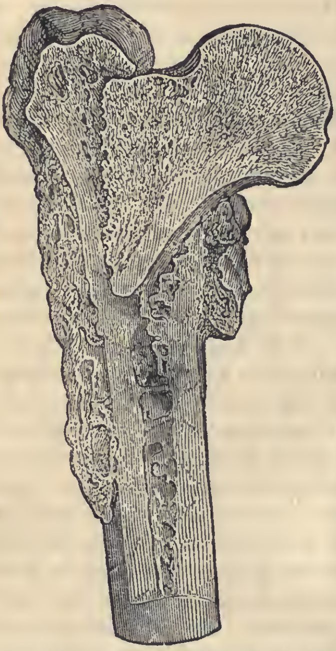
[1] Hervez de Chegoin, Journal Général de Médecine, 1820, tome lxxii. p. 3.

[2] Alph. Robert, Mémoire sur les Fractures du Col du Fémur accompagnées de pénétration dans le Tissu spongieux du Trochanter (Mémoires de l'Académie de Médecine, 1847, tome xiii. p. 486).

Fig. 19.



Extra-capsular fracture of the neck of the left femur with complete penetration of the cancellous tissue of the trochanter.

From this point of view there would be some use in recognizing beforehand the existence of penetration; for the therapeutical corollary would be to make no exaggerated attempt to remedy the shortening and the outward rotation But here again we reach only presumptions. When the pain and the ecchymosis make us think that the fracture is extra-capsular, we may at the same time suppose that it is with penetration, because it is especially in such cases that penetration is met with.

The presumption becomes greater, if by making an assistant stand at the end of the bed, grasp the limb, and try to lengthen it and rotate it inwards, we see that the two principal displacements (rotation outwards and shortening) do not yield, and that the attempt causes pain. For in fracture without penetration it would seem as if the assistant's hand ought not to encounter the same resistance as in fracture with penetration. I have again to regret that I cannot give you this mode of exploration as one leading to a positive conclusion. For, if the limb lengthens, and the outward rotation is overcome easily, that will be a proof that penetration, or at least irremediable penetration, does not exist. But inability to correct either of these displacements may be due to two causes; either to penetration, or to muscular resistance. Now, to which of these two causes should we attribute it? This is precisely the question which we have to ask in the case of our second patient.

We have not been able by a gentle effort to correct either of the two displacements. I presume, but I am not certain, that this is due to penetration. The question will be cleared up in a few days. If it is only a muscular spasm it will disappear with the pain, and then if there is no penetration we shall be able to correct at least the rotation outwards, and probably also part of the shortening; if, on the contrary, there is penetration we shall remain unable to correct the displacements.

To recapitulate: you see, gentlemen, that if the etiological, anatomical, and physiological studies relative to fracture of the neck of the femur, which have been made since the beginning of this century, have enlightened us upon the mode of production, the varieties of location, the symptoms, the difficulties, and the method of consolidation, the clinic has not found the means of recognizing, especially at first, all the anatomical dispositions revealed by these studies. The diagnosis upon the living subject is precise only as to the existence of the fracture, and is reduced, on the other points, to presumptions. I prefer to admit this before you rather than to transmit to you errors or useless opinions.

Prognosis.—Those who taught clinically twenty years ago, would undoubtedly have told you that the prognosis was bad for both women, and that death was imminent in a certain measure.

At the beginning of my studies, during my internat under Professors Roux and Blandin, I remember to have seen patients affected with fractures of this kind die after a few weeks, and to have had the opportunity to make the autopsy. But this has no longer been so during the last fifteen or twenty years; the patients survive, and we rarely have occasion to make the autopsical examination of recent fractures of the neck of the femur.

Since I have been practising as hospital surgeon, that is, since 1847, I remember only one case of death during the fortnight following the accident. It was at the Hôpital Cochin, a woman, 82 years old, whose fracture was extra-capsular with penetration.

The three or four other autopsies which I have had occasion to make, were upon subjects who had had their fractures for several months, who no longer suffered at all from them, and who died from some other affection.

To what is this change due? I attribute it to one single cause, that at the beginning of this century the surgeons, guided by false ideas upon the indications of treatment, subjected their old people to the pains of continuous extension. Hence insomnia, fever, loss of appetite, and an alteration of the respiratory passages which carried them off. They said the patients died of hypostatic pneumonia due to horizontal decubitus, and they did not see that this pneumonia was the ultimate lesion of a febrile affection consecutive to a painful condition which old people cannot support. These pneumonias have almost disappeared since we have ceased to make our patients suffer.

Does that mean, however, that our patients are exposed to no alteration of their health dependent upon the fracture? Although I have little fear of a fatal termination, still I ought to tell you here that of all fractures, that of the neck of the femur is the one which has seemed to me to cause the most fever during the first days. You know that after fracture we have a first period, called inflammatory, during which the predominant symptom is pain. I showed you, however, that, during this period, patients affected with fracture of the leg, or of the shaft of the femur, or of the arm or forearm, did not have any marked quickening of the pulse or elevation of temperature, or that, if this elevation took place, it was temporary. In old people who have fractures of the neck of the femur, on the other hand, we often see during three or four days the pulse rise to ninety, the axillary temperature increase two degrees, and in those who are more than 80 years old eschars form rapidly on the sacrum. I asked myself at the time when we saw these fractures terminate quite frequently by death, if this fever was not the consequence of a septicæmia starting from the crushed spongy tissue, and if it did not deserve the name of septicæmic bone fever, and if the death should not be attributed to a peculiar congestion of the bronchi and of the brain in the course of, and by the fact of, this septicæmia. Since the mortality has sensibly diminished I have given up these explanations, or at least I have recognized that, if it is permitted to invoke a septicæmia, we must admit that it is often slight, and that if we do not torment the old people with the pains of apparatuses, it limits itself to a few days of malaise.

Of our two patients, the one who was injured a week ago is entirely without fever; the one whose fracture was received forty-eight hours ago has a pulse of ninety-two, a little headache, loss of appetite, and thirst. But as there is no oppression, no dryness of the tongue, no delirium, no commencing eschar upon the sacrum, I have the right to hope that the fever will be temporary and mild.

If I have no fear for the life of our patients, I am not so certain about the restoration of the shape and functions of the limb.

As for the shape, I hope that the one in No. 6, the one in whom I suspect intra-capsular fracture, will recover without retaining rotation outwards, because in the few movements which I communicated, it seemed to me that this rotation outwards might be corrected.

The other, on the contrary, the one in whom I suspect an extra-capsular fracture with penetration, will undoubtedly retain the deformity resulting from the persistence of the rotation outwards, that is to say, that when standing or walking, she will have the foot turned outwards. This deformity will cause no great inconvenience, it is true, but it is none the less to be mentioned in the prognosis. We shall, moreover, have to direct some of our treatment towards it, for it is possible that we may ultimately correct it, since I do not consider it absolutely irreducible, although I am by no means sure of being able to make it disappear.

On the other hand, these two patients will preserve a shortening of the limb, for two reasons: first, because I shall not try to oppose it; secondly, because if I should try, I should not succeed, the muscles on the one hand, and the interlocking of the fragments on the other, (especially in the second patient), being obstacles against which we can contend advantageously only by means of excessive tractions, which the patients cannot support, and to which it would be cruel to subject them.

As for the functions, I am obliged to leave you in uncertainty, because their re-establishment depends upon individual conditions which I cannot produce, although all my efforts should be directed towards this end.

After a few weeks of confinement to the bed these women will begin to get up and walk with crutches. How long will that last? If affairs go on fortunately, if bony or strong fibrous consolidation is obtained, if the consecutive arthritis is resolved, if no false anchylosis remains after three or four months, and if the muscles are not too much weakened, the crutches will be replaced by a cane, and the patients will be able to walk quite easily, limping but little.

I know three old people, one of them 69, the other two more than 80 years old, who broke the neck of the femur at 68 and 70 years of age, and who for many years have walked without limping—can even walk several miles easily. It is true that they are men, and vigorous ones.

The old women whom I have known or still know in private practice, with fracture of the neck of the femur, have continued to limp, to suffer, to walk with a crutch or a cane, and for only short distances.

Nevertheless, I saw at the Hôpital de la Pitié, in 1866, a woman 66 years old, whom I had treated for a fracture of the neck of the left femur, by simple rest in bed for three weeks, and who, at the end of this time, had walked with crutches. She left the hospital seven weeks after her admission, using only a cane, not suffering, and able to walk without fatigue for about fifteen minutes. After her departure she continued to walk better and better, still with the aid of a stick, but taking walks of about half an hour without too much fatigue. The patient came to see us several times, and I presented her as an example of good consolidation after a fracture whose extra- or intra-capsular position I had not been able to determine strictly, for the reasons which you know. Seven or eight months later she was received into the service of my colleague and friend, M. Empis, for a disease of which she died. We made the autopsy, and, to my great surprise, I found an intra-capsular fracture which was consolidated neither by bony tissue nor by fibrous tissue. The fragments, held together only by a few pieces of periosteum, slipped upon one another, forming a pseudarthrosis like an arthrodia.

I fear then, because this is a quite frequent termination in both sexes, and still more frequent in women than in men, that our two patients will never walk without crutches, will have pain caused by movements, and, in a word, will remain infirm. But there is no certainty upon this point. For these bad results may depend either upon a non-consolidation, or upon an incurable dry arthritis, or upon muscular weakness, or upon all three causes united. Now, I cannot say definitively whether these causes will intervene; for the patients may not have dry arthritis. They may have a sufficient consolidation;

I have just told you that even with a pseudarthrosis it was not impossible to walk. Let us hope for a good result, let us try to obtain it, but without counting absolutely upon it. Such, in short, ought to be our prognosis.

Treatment.—What shall we do for these two patients?

Certainly it would seem rational to employ apparatuses which correct external rotation and shortening. P. J. Desault[1] formulated this indication perfectly, and invented a splint for continuous extension which still bears his name. Guided by the idea of Desault, Boyer invented another splint supplied with screw which answered the purpose still better, and which had a certain vogue.

It is a remarkable fact, but these apparatuses for continuous extension caused pain, fever, sometimes eschars, always sleeplessness and loss of appetite, and certainly the death of a good number of old people. Those who survived preserved none the less rotation outwards, shortening, and more or less infirmity; nevertheless they were so penetrated with the idea that the surgeon's duty was to oppose the deformity, and that the death was the result of unfortunate conditions in the patient, that they were finally led to abandon apparatuses for continuous extension by false theories rather than by the results of observation.

It is to two great surgeons, Astley Cooper and Dupuytren, that we are indebted for these theories, which, to the great profit of the patients, led to the abandonment of these apparatuses.

You already know Astley Cooper's: fractures are intra-capsular in old people, and intra-capsular fractures do not consolidate. Consequently, whenever the patients are more than 50 years old it is not necessary to subject them to the pains of continuous extension. We now know that in old people fractures are sometimes extra-capsular, and that intra-capsular fractures can consolidate, but we have retained the deduction, because observation has shown us, since Astley Cooper's fortunate modification of the treatment, that fractures of the neck of the femur treated without continuous extension heal just as well as, and even better than, with it.

On his side, Dupuytren, in proposing and employing treatment by means of semi-flexion, had the idea that in the semi-flexed position, counter-extension was made by the weight of the pelvis, and extension by the weight of the limb, and he asserted that as this position gave, without apparatus, continuous extension, it enabled us to obtain a cure without shortening. In this there was an error of interpretation and an error of observation. But the impulse given to the practice by Dupuytren was none the less very salutary, in protecting the unfortunate old people from the pain of continuous extension.

To-day, gentlemen, you may be very sure of two things:—

The first is that in old people apparatuses to make continuous extension cannot stretch sufficiently, and especially for a long enough time to oppose successfully the two causes of shortening of which I spoke a moment ago: muscular action and crushing.

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[1] Desault, Cours théorique et pratique de Clinique externe; Paris, an. xii.

The second is that, even while not exceeding certain limits, it produces, by the continuous pain, an alteration of the health which, at this age, is not always compatible with life.

We must then resign ourselves to seeing the shortening persist. We may try to oppose external rotation; but if this opposition is painful we must give it up, and await recovery with the persistence of this symptom also.

Pain is, above all, the thing which should be avoided in old people affected with fracture of the neck of the femur. With this object we leave the patient in No. 6 for the present without any restraining apparatus, and we apply linseed poultices sprinkled with laudanum. We prescribed a soothing potion for the day, and half a grain of the gummy extract of opium to be given if she suffers enough to make a bad night probable.

Furthermore, to avoid or diminish the pains which would be caused by movements, we have placed her upon a mechanical bed by means of which she can be raised for all necessary purposes without movement. If in a few days the patient complains of pain on the sacrum, and if, as her leanness may make us fear, we see an eschar is imminent, we shall place her upon a water mattress. The mechanical bed and water mattress, gentlemen, are the two great means of alleviation and, for a certain number of patients, of the preservation of life after fracture of the neck of the femur.

After the inflammatory period has ended, say in about a week, if the tenderness is greatly diminished, I shall place the limb in semi-flexion. I shall not simply use Dupuytren's two large cushions, one under the thigh, the other under the leg, for these cushions yield promptly and do not keep the limb flexed unless they are raised up two or three times daily, an act which causes pain.

I shall use a double inclined plane of wood, made of two planks united at an angle, upon each of which will be placed a bag of chaff. As soon as the limb has been placed upon it, a sheet rolled about the lower part of the leg, and pinned to the mattress or the side of the bed, will keep the foot in place after correcting its external rotation. I place the limb in semi-flexion because I have noticed, without being able to explain it, that in this position, rotation outwards was sometimes corrected easily, and much better than when the limb was extended. But I shall keep the patient in this position only if she does not suffer.

You will meet with old people in whom the semi-flexion causes prolonged pain either in the calf of the leg or in the groin. If our patient presents this complication, I shall remove the double inclined plane, leave the limb extended, and content myself with placing a cushion under the outer border of the foot to raise it a little. Above all, I seek to avoid pain, and to its dangers I prefer the slight inconvenience of the persistence of the rotation. I have all the more reason to prefer it, because the use of the double inclined plane gives me only the hope but not the certainty of recovery without rotation.

As to the other patient, I found her with a Scultet bandage well applied, and completed by a body band which partly immobilizes the pelvis. I left her in this apparatus after having examined the limb and applied the mechanical bed. As the rotation of the foot outwards is not very great, and the fracture seems probably to be with penetration, I shall not use the double inclined plane, and I shall continue the Scultet bandage, but remove it if I hear the patient complain that it causes pain.

It goes without saying that the nourishment of the patients will be as strengthening as circumstances will permit, and that the sacral region will be watched so as to prevent, by means of lotions of aromatic wine, starch powder, and cotton pads, the eschars whose approach would be indicated by erythema and excoriations.

I shall not leave the patients in bed very long. The horizontal decubitus weakens old people, and predisposes them to pulmonary engorgements. In about three weeks, if the pain has diminished sufficiently, I shall have them sit up in a chair. They will be lifted out and put back by means of the mechanical bed with great precautions. Experience has shown that these few movements do not prevent repair from going on to the extent to which it is possible.

I shall give them crutches at the end of five or six weeks, and a little later they will make use only of a cane.

LECTURE XXII.

FRACTURES OF THE LOWER EXTREMITY OF THE FEMUR.

I. Simple supra-condyloid fracture—Functional and physical symptoms—Projection forward of the upper fragment—Imperfect reduction—Probable penetration—Concomitant arthritis. Treatment. II. Supra-condyloid and inter-condyloid fracture, its production by a wedge-like mechanism—Influence of age upon this mechanism and upon this diagnosis—Reduction impossible. III. Supra-condyloid and inter-condyloid fracture complicated with a wound and projection of the end of the upper fragment—Amputation—Examination of the piece.

GENTLEMEN: I. *Simple supra-condyloid fracture of the right femur.*—The patient in No. 15, 32 years old, told us that yesterday evening he was knocked down by a wagon, and fell upon his right knee. He thinks he is sure that the wheel did not pass over his limb, and that he simply fell in a false position, although he cannot say in what this false position consisted. This, however, is certain, that after having fallen he was unable to rise, that he felt severe pain in the knee, and was brought on a stretcher to the hospital.

This morning, after having removed the Scultet bandage which was applied yesterday, we found:—

As functional symptoms: 1st. The absolute impossibility for the patient to raise his heel from the bed and to make any movement with his right leg; 2d. Quite sharp pain on pressure above the knee.

As physical symptoms: 1st. A moderate swelling, but with fluctuation indicating an incontestable effusion in the femoro-tibial articulation; 2d. An abnormal prominence, a little irregular, but not pointed, at the anterior part of the thigh three finger-breadths above the patella; 3d. An unusual mobility in the transverse direction when I moved the foot alternately outwards and inwards with one hand whilst holding the centre of the thigh firmly fixed with the other.

I did not feel any crepitation, and, carrying my fingers behind into the hollow of the knee, I did not feel any abnormal prominence formed by a fragment of bone.

From these symptoms I do not hesitate to assert that we are in presence of a fracture of the lower extremity of the femur (*Malgaigne's supra-condyloid*).

Undoubtedly, the functional troubles which I mentioned, and the considerable enlargement of the synovial cavity might have made us suppose it to be a violent contusion of the articulation, a sprain, or a fracture of the patella. I do not admit the latter, because I found neither interfragmentary separation nor abnormal mobility of the upper and lower halves of the patella. I do not absolutely reject the idea of a contusion and a sprain; but if these lesions exist they are only a coincidence.

The main lesion is the fracture. The dominant symptom which proves it is the abnormal mobility in the transverse direction. This does not exist in the simple contusion; it is true it may be found in sprains of the severest kind, with rupture of the lateral ligaments. But the mobility which we find here is not that of a sprain, for two reasons: first, because it is much greater and more easily obtained than is that of a sprain; second, because the centre of these unusual movements is plainly above the articulation. Add to that the abnormal projection forwards of the upper fragment, which makes the diagnosis still more positive.

I shall not try to give you any notions upon the etiology, for I know but little about it. The patient, as is always the case, cannot tell us how he fell. His story permits us to infer that the fracture was not produced by a direct blow. But how did the indirect cause act, to produce a fracture at a point where the bone is so large and so strong? This is what remains problematical. I am disposed to believe that the lesion has been prepared by some alteration in the bone, similar to that which takes place in old people in the cells of the cancellous tissue, and which gives this tissue a fragility greater than at other ages. There may have been in him what I call *premature senile alteration.* But this opinion, which I offer here, as for certain almost spontaneous fractures of the shaft, is not thus far susceptible of demonstration.

One word upon the displacement. Since we feel a projection of the upper fragment forward, we infer the existence of a transverse displacement with projection, which we can attribute either to the direction of the fracture, or to the action of those parts of the triceps which are inserted into the femur. I do not think that there is at the same time longitudinal displacement or overriding; for I found a difference of only a line or two in the length of the two limbs, and this difference might be due as well to the difficulty of exact measurement as to a real shortening. I presume that the fragments have not slipped entirely past one another, and that consequently shortening could not be produced.

I looked carefully to see if there was tipping backwards and downwards of the lower fragment, a kind of displacement which was indicated by Boyer as being habitual in this fracture, and which he attributed to traction excited by the gastrocnemius. It seemed to me that nothing like that existed here, that the lower fragment simply extended beyond the upper one behind, and the upper fragment extended beyond the lower one in front.

Supra-condyloid fractures are not common enough for my own experience to enable me to know in what proportion this tipping backwards of which I have spoken appears. I have never met with it. M. U. Trélat[1] tells us that in nine cases, which he found described by the different authors, this tipping backwards occurred only once. I am, therefore, inclined to believe that it is rare. But as it may occur, I advise you always to see if it exists and if it does not exert, as it may possibly do, an undesirable compression upon the popliteal vessels.

The *prognosis* is simple, in this sense, that our patient's life is not compromised; but it is uncertain, and may be bad upon another point, that of persistent deformity on account of irreducibility.

I told you that there was a projection forward of the upper fragment. I add that I have made every effort to reduce it. While an assistant, placed at the foot of the bed, made extension upon the foot, and another held the middle of the thigh firmly to make the counter-extension, I tried to push back the upper fragment with my hands and to make this prominence disappear, but I did not succeed. I repeated the attempt several times, and it always failed. It is probable that I shall not succeed any better hereafter, and that, consequently, consolidation will take place with persistence of the transverse displacement. Fortunately, the prominence is not great enough to endanger the skin; fortunately, also, there is no considerable overriding, so that this deformity, in reality slight, will have no unfortunate consequences for the functions.

But to what is this irreducibility due? To an anatomical disposition which I have told you is often found in fractures of the extremities of long bones. To the penetration of the lower fragment by the posterior part of the upper one. M. U. Trélat has shown clearly that there is often crushing of the spongy bone found here, as there is in the lower extremity of the radius and in the neck of the femur near the great trochanter, and that one of the points on the circumference of the long fragment penetrates into the body of the lower one, and lodges there in such a way that it cannot be disengaged. I do not mean to say that penetration always takes place in the supra-condyloid fracture, nor that, when it does so, it is always irreducible; I only say that it happens often, and that it has happened in this case.

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[1] U. Trélat, Thèses de Paris, 1854.

The prognosis may be bad in another way, that of consecutive arthritis. I do not believe that the fracture sends a fissural prolongation towards the articulation of the knee. Still, it is not impossible. But the fracture is so near the articulation that, by proximity, the latter is already affected and full of liquid.

If we find arthritis of the knee after almost all fractures of the shaft of the femur, so much the greater reason is there for it to appear when the lesion, without being articular, is so near the joint. It is not that I fear that which would be more dangerous, suppuration. Such a termination, strictly speaking, would be possible; but we find it so exceptional after simple fractures that there is no reason to fear it in the present case. Still, non-suppurative arthritis is the more severe and the more likely to leave behind it a prolonged stiffness, or even incomplete anchylosis, as the articulation is nearer the inflamed seat of the fracture. This part of the prognosis in this case is diminished, it is true, by the circumstances that the patient is young and apparently neither rheumatic nor gouty. But, nevertheless, I cannot guarantee that he will not have a false anchylosis, and that the means with which we can oppose this result will be successful. Upon this point we should always warn the patients or their friends, so that they shall not accuse us, as so many people are disposed to do, of having allowed, through insufficient care, this false anchylosis to be established.

Treatment.—At present we have but one thing to do: set the fragments as well as possible, and keep them in place. I applied, this morning, the Scultet bandage, with which you are acquainted, after having made, unsuccessfully, some attempts at reduction.

In a few days I shall renew these attempts, and again once more a few days later. If I should succeed in replacing the upper fragment, I shall add to my bandage anterior compresses intended to keep this fragment in place; if I remain unsuccessful, which is most likely, I shall content myself with the same dressings, and I shall not think for a moment of applying any apparatus for making continuous extension.

I expect consolidation to go on more rapidly than in other fractures of the femur, for two reasons: first, because, ordinarily, the callus forms more rapidly in the spongy than in the compact tissue; and, secondly, because the circumstance of a persistent penetration favours this rapidity.

If, at the end of four or five weeks, I no longer find abnormal mobility, I shall remove the apparatus and leave the limb free. I shall not let the patient get up; for it is probable that the callus, though solid enough for the horizontal position, is not sufficiently so to support the weight of the body. But I shall tell the patient to move his knee a little while lying in bed; I shall, myself, communicate some movements to it every morning, and I hope that this little exercise will prevent the formation of an anchylosis, and favour the restoration of motion. You know that this stiffness after fracture is due partly to traumatic arthritis and partly to prolonged immobility. It is to diminish the influence of the latter that I shall remove the apparatus early, and have recourse immediately to communicated movements. I shall thus leave only the influence of the traumatic lesion, but it is true that this influence is so great that I always fear a notable and definitive loss of part of the normal movements of the articulation.

II. *Fracture, supposed to be supra- and inter-condyloid, of the lower extremity of the left femur.*—Here is a man 59 years old, of rather feeble constitution, who fell three days ago upon his left knee, from a stool upon which he was standing to unhook a curtain. When brought to the hospital, yesterday only, he presented the following symptoms:—

Decubitus upon the back; left leg extended, without rotation outwards; inability to raise the heel from the bed; pain at the knee when he tries to move, when movement is communicated, and when the articulation is pressed upon.

The knee is very swollen, and evidently fluctuating; it seems enlarged, and when, raising the foot, we move the lower part of the leg laterally, we feel a very marked abnormal mobility, the maximum of which is evidently above the line of the articulation. It is difficult to feel the patella, because above and a little in front of it is an abnormal bony prominence which is clearly continuous with the shaft of the femur. There is also shortening of the limb to the amount of 1¼ inches.

You recognize from these symptoms a fracture of the lower extremity of the femur. But here I have every reason to think that the fracture is not only supra-condyloid but at the same time inter-condyloid, that is to say, that in addition to the line of fracture which passes above the condyles, and which, from the projection forwards of the upper fragment, runs obliquely upwards and backwards, there is a vertical line which passes through the inter-condyloid notch, and separates the two condyles from one another.

The only physical sign upon which this diagnosis is based, is the transverse enlargement of the knee, an enlargement which I suppose to be due to a slight separation of the fragments from one another; but I was unable to detect any abnormal mobility by grasping each condyle and trying to move it backwards and forwards. If, as I believe, the condyles are separated, they are still so firmly held, either by the ligaments or by their connections with the upper fragment, that they cannot be moved separately.

But if I have no other physical sign to support my opinion, I find a probability which is very nearly a certainty, first in the age of the patient, and then in the ideas we have gathered from the examination of several pieces, and from our studies upon the mechanism of wedge-shaped or V fractures.

I say the age of the patient; for, in several pieces which I have examined, in one, among others, which I presented to the Société de

Chirurgie, the 21st Nov. 1855,[1] and which I recalled in a report upon the works of M. Lizé in 1858,[2] fracture at the same time supra- and inter-condyloid was observed in patients who, like this one, were more than fifty years old, that is, had reached the period of life in which the spongy tissue of the bone has undergone those modifications which render it more fragile and more liable to split under the influence of violent pressure.

I demonstrated distinctly in these same pieces, by bringing the two condyles together, that there was a depression or loss of substance into which the oblique and more or less pointed extremity of the upper fragment passed. It was sufficient to put the pieces in place to see that, at the moment of the accident, the upper fragment must have penetrated into the lower one, and, acting upon it like a wedge, split it all the more easily because at this point (the inter-condyloid notch) the lower fragment is very short. Pursuing, in a word, the studies upon penetration made by M. Voillemier[3] for the lower extremity of the radius, and by Alph. Robert for the upper extremity of the femur, and those which I had made for V fractures with secondary lines resulting from the pressure of one of the main fragments upon the other, I showed that complex supra-condyloid and inter-condyloid fractures belonged to these varieties (fracture by penetration, wedge fracture), of which our predecessors did not make sufficient mention, and which M. U. Trélat alone had pointed out, without dwelling upon them long enough to make our ideas clear upon this subject. It is to give you precise ideas upon it that I remind you, whenever the occasion presents itself, that this mechanism of penetration is intimately united with that of crushing, that both of them intervene in most fractures of the cancellous extremities in old people, and that the wedge action, the consequence of the penetration and crushing, intervene also in these same conditions, and add the lesion which causes the fracture to communicate with the neighbouring articulation.

To recapitulate then, we have here, in all probability, an articular fracture of the lower extremity of the femur, with projection forwards of the upper fragment, and overriding.

Is this fracture reducible? You saw that in making the manœuvres of extension and counter-extension, I strove in vain against the displacement, and that I was able neither to restore to the limb its length, nor to cause the projection of the upper fragment to disappear. If I meet with the same obstacles in the following days, and it is probable that I shall, I shall find myself once more in presence of an irreducible fracture. Do not be surprised at it, gentlemen; irreducibility is a consequence, I do not say inevitable, but very frequent, of these fractures with penetration and secondary splitting of one of the fragments by the wedge-like action of the other. In certain cases it is due to the fact that the long fragment remains lodged within the short one, and is kept there by a kind of connection for which I find no other word than interlocking. This is not exactly the case to-day; for the projecting portion of the upper fragment is so voluminous that it has evidently abandoned, at least in great part, the lower fragment after having split it. It may be, however, that the posterior portion of the first is adherent by some irregular points, and by means of adjoining fragments, and that these prevent reduction. It is probable that the principal obstacle is caused by muscular resistance, as in a certain number of fractures of the shaft of the femur, while the obliquity of the main line of the fracture, and the pulverization and packing of the cancellous tissue of both fragments, favor and render irremediable the shortening produced by this muscular action.

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[1] Gosselin, Bulletin de la Société de Chirurgie, tome vi. p. 262.

[2] Lizé, Bulletin de la Société de Chirurgie, tome ix. p. 148.

[3] Vollemier, Clinique Chirurgicale, Paris, 1861.

I do not mean to say that all supra- and inter-condyloid fractures are as irreducible as this one is. I say only that it is quite frequent, and that in our present patient it is as marked as possible.

You understand the prognosis: the patient will recover with considerable shortening, and the arthritis will be all the more severe, prolonged, and likely to end in anchylosis, because, on the one hand, the fracture communicates with the articulation, and on the other, the age of the patient predisposes to prolonged arthritis and anchylosis.

As to the treatment, it will consist of repeated attempts to make reduction, and of the application of a Scultet bandage which I shall maintain so long as the abnormal mobility lasts. I fear the consolidation will be slow, because only a small part of the upper fragment is in contact with the lower one, and this disposition is not favourable to the formation of a callus.

III. *Supra- and inter-condyloid fracture with wound and projection of the end of the upper fragment. Amputation of the thigh.*—The patient whom we saw at No. 25, and who is 51 years old, was caught yesterday by the caving in of some earth, and, after a moment's struggle, was overthrown, feeling at the same time severe pain in his left knee, but without knowing how or in what position the knee was injured.

We find the parts in the following condition:—

Through a wound in the anterior portion of the thigh above the patella, projects the upper fragment of the femur, which ends in a hard point. About this wound there is no ecchymosis and no effusion of blood. The articulation is swollen and fluctuating. There is very marked lateral mobility, and an enlargement of the transverse diameter of the knee, with inability to move each condyle separately, backwards and forwards.

We have evidently here, a compound supra-condyloid fracture with issue of the upper fragment. I add, that for the moment this fragment is irreducible, for I have made fruitless attempts to return it to its place. It is also very probable that the fracture is at the same time inter-condyloid, and that consequently the external wound communicates both with the seat of this fracture and the cavity of the articulation. My reasons for thinking so are, the broadening of the knee, the abundant and rapidly formed effusion within the articulation, the form of the upper fragment which is well fitted to penetrate and act like a wedge, and finally the age of the patient. This diagnosis leads to a very serious prognosis.

A large wound like this will inevitably suppurate, and it is also inevitable that the suppuration will extend to the fragments of bone and the articular cavity. Now this suppuration in a hospital, upon a man who is quite old, has every possible chance of terminating in putrid infection during the first few days (grave traumatic fever), or in purulent infection, and in any case by death. Although amputation of the thigh is also dangerous, and although amputation for a traumatic cause especially yields only rare successes, yet I consider that this operation is a little less likely to be followed by death than an attempt to preserve the limb would be. That is why I prefer amputation: the patient accepted it, and we shall now perform it.

This will be an amputation of the kind which M. Hip. Larrey called *primitive*, that is, one which is performed before the development of the traumatic fever. If we should wait until this evening or to-morrow, this fever would undoubtedly be established, and the patient would be in a much less favourable condition.

(We found on examining the piece, that the fracture was inter-condyloid as well as supra-condyloid, and that consequently the wound and the seat of the fracture communicated with the articulation. The patient succumbed on the twelfth day, to a purulent infection which succeeded a very intense traumatic fever.)

LECTURE XXIII.

SPONTANEOUS FRACTURES, AND ITERATIVE FRACTURES OF THE SHAFT OF THE FEMUR.

I. Considerations upon spontaneous fractures—They are due to an abnormal fragility—This is caused sometimes by a cancer, sometimes by a rarefying osteitis, sometimes by premature senile rarefaction—Case of a patient affected with spontaneous sub-trochanteric fracture of the femur—Robert's analogous case—Another case in the Hôpital Cochin. II. Iterative fracture of the left femur, due to not keeping the bed long enough—Means of avoiding this accident.

GENTLEMEN: I. *Spontaneous fractures.*—We have the habit of giving the name *spontaneous* to fractures which are produced so easily that they seem to occur without the intervention of any appreciable cause. Notwithstanding our habit, this designation of spontaneous is not absolutely exact, for in reality we can always attribute the solution of continuity to muscular contraction or the weight of the body. But when it is a question of a bone so voluminous and so strong as the femur, of a bone which serves for the attachment of powerful muscles, and to support the body when standing or walking, you will admit that it is allowable to consider as almost spontaneous fractures which have no other cause than the accomplishment of the functions of this bone.

It is sufficient to consider the physiological resistance of the femur to understand that if in certain exceptional cases it yields so easily, it is because this resistance has been weakened by a modification of its structure.

This is very evident when the fracture is consecutive to an osteosarcoma.

I saw, for example, at the Hôpital Cochin, in 1857, a woman 60 years old, who had been admitted for a tumour, larger than the fist, occupying the entire circumference of the right femur, and which we had recognized as a cancer of this bone. A few weeks after her admission to the hospital, they told me, one morning, that she had complained during the night, after a movement to turn in bed, of a very sharp pain, and that since then the pain had not ceased. On reaching her bed I found her with the foot and leg in outward rotation, and with very marked mobility at the point occupied by the tumour. There was no doubt that the cancer had gradually destroyed the bone, and that at last the femur was no longer strong enough to bear without breaking even a movement in bed.

I saw a similar case at the Hôpital des Cliniques, in 1848, in a man 65 years old, who had broken his left femur while getting out of bed, without any other accident, and in whom the fracture took place at the seat of an old cancerous tumour which occupied the femur and had been indolent up to that time.

But the explanation of the loss of strength by the femur at some point in its length is more difficult to give in cases like the one before us, in No. 10, Ward St. Louis (Hôpital de la Pitié).

The patient, 30 years old, of vigorous appearance, has been under treatment here for more than 80 days, and in another fortnight will leave us to go to Vincennes.[1]

When we first saw him he was in a medical ward where he had been placed because they had no reason to suspect the existence of a surgical lesion. He told us that while walking tranquilly across the Grenelle bridge, and without having made any false step, he felt a sharp pain at the upper part of his left thigh. He then sank down gently, and waited until two passers-by came to help him.

Finding himself unable to walk, he was carried to the Central Bureau, and thence forwarded to a medical service for this pain which was supposed to be rheumatic.

Having been asked to examine him, I found rotation outwards, shortening of the limb to the extent of an inch, and abnormal mobility with crepitation in the upper third of the thigh below the trochanters. The patient was then brought to my ward, later examinations confirmed the first impression, and it became more and more evident that this man (who before this time had not been lame, and had a well-formed limb) had suffered while walking, without falling, and without having received any external violence, a sub-trochanteric fracture. He assured us, moreover, and those who brought him here confirmed the statement, that he was not intoxicated at the time of the accident, and that he was perfectly aware of all that took place. We were then justified in believing that this was a spontaneous fracture. But was not this fracture the consequence of a cancer? We felt no appreciable tumour. If there was a cancer, it was one of those hidden ones of the medullary canal which it is permitted to suspect, but the existence of which can be demonstrated by no physical sign.

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[1] A succinct account of this case was published in the Gazette des Hôpitaux, 5th April, 1862, p. 158.

Moreover, the age of the patient and his vigorous constitution dismissed the idea of a cancerous affection. But if it was not a cancer which had weakened the femur, it must have been another lesion; what was it? Search through the records left by our authors does not enable me to give you a precise answer; for they have not attempted to explain the cause of the fragility of certain bones, and they were not able to do so, for the simple reason that examples of it are very rare. In those which have been presented, no autopsy has been made; it was necessary to be satisfied with the clinical fact which, in itself alone, as in our present case, did not clear up the pathogenic question.

Malgaigne spoke of a peculiar osteitis which causes fragility of the bones, and explains these fractures which are so easily produced. But, as I shall have occasion to tell you when speaking of other fractures by muscular contraction, I would believe in the intervention of this osteitis if our patient had suffered for any length of time. Malgaigne appears to have observed these spontaneous fractures in patients who had had these sufferings, and that is what justifies the expression of the opinion. I was able to attribute the fracture to an osteitis in the case of a patient of whom Alph. Robert spoke in his lectures,[1] and whom I treated at the Hôpital Cochin, because this patient had had for two years continual pains in his lower limbs.

But when, as in our present patient, there has been no pain of this kind, must we admit, nevertheless, rarefying osteitis? I think not. For if I understand rarefaction of bony tissue coinciding with an osteitis, I also understand, very well, rarefaction without osteitis, and by a peculiar vice of nutrition analogous to that caused by age, whence the name *premature senile rarefaction* or *alteration* which you have heard me use quite often.

Is there not, at least in this patient, some constitutional cause which might explain the rarefaction? I know none. I have given particular attention to the possibility of constitutional syphilis. Now, on the one hand, it is claimed by nobody that syphilis causes fragility of the bony tissue; on the contrary, it rather increases their solidity by producing hyperostosis and exostosis; on the other hand, our patient shows no trace of syphilis, and says he has never had it. It was the same with the case at the Hôpital Cochin. It is true that I gave him the iodide of potassium; but I administered it as a fortifying and not as an antisyphilitic measure. It was the same in Robert's case.

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[1] Robert, Conférences de Clinique Chirurgicale, 1860, p. 498.

I call your attention to another point.

This fracture occupies the upper third of the shaft, and deserves the name of sub-trochanteric.

It occupied the same place in my patient at the Hôpital Cochin, and also in Robert's patient. Has the upper portion of the shaft of the femur a special predisposition to this singular alteration of nutrition which causes fragility? Three cases are not enough to give us any certainty upon this point, but it is allowable, at least, to mention the peculiarity.

Prognosis.—When I began the treatment, I did not know if we should get consolidation. For if the fragility had been due to a hidden cancer, the callus undoubtedly would not have formed, and in case of premature senile alteration, there was also reason to fear that materials for the callus would not be furnished, or would not be properly elaborated at this affected portion of the skeleton.

Still, as the callus had formed in my patient at the Hôpital Cochin and in Robert's, and as this patient was of a vigorous constitution, I had no reason to despair.

The fact is that the consolidation was obtained in the ordinary length of time, and that to-day, three months afterwards, not only do I no longer find abnormal mobility, but I feel a large strong callus, which makes me think that at the place occupied by the bony alteration, the traumatic inflammation excited a nutritive movement, and restored, perhaps even in excess, the normal strength of the bone,[1] that is, notwithstanding the presumed pre-existing rarefaction, this traumatic osteitis has taken on the condensing form which we see so often after fractures of the long bones.

The fears which I might have had on the subject of non-consolidation have been justified by the case of a patient whom I have since seen at the Hôpital de la Charité.

It was a woman 52 years old, much more feeble and broken down than is usual at that age. A few months before her admission to the hospital she had broken her right humerus by a very simple fall from a standing posture, and had recovered; a little later she had broken the shaft of the left femur below the trochanters, as in the three patients of whom I have spoken, and so easily that she did not know exactly to what accident to attribute it. For she had fallen three months before in her room while walking slowly towards the window, and a few weeks afterwards, while turning in bed, she had felt very sharp pain in her thigh, and she was unable to say whether it had been broken by this latter movement or by the antecedent fall. However that may be, the thigh presented shortening, rotation outwards, and very marked abnormal mobility, symptoms either of a fracture still too recent to have become consolidated, or of an old non-consolidated fracture. This woman died of exhaustion in May, 1868.

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[1] This patient came to see us two months afterwards at the consultation; he walked with a cane and still had a very solid callus.

We found at the autopsy, below the trochanters, a false articulation, consisting of a fibrous sleeve, quite thick but not ossified, in the cavity of which the two fragments were found at a certain distance from one another.

It is evident that the fracture dated from the first accident of which she had told us, and that it had not consolidated. Above and below the vacuoli of the cancellous tissue of the femur were very notably enlarged, the compact tissue was thinned, and a moderate pressure was sufficient to split the bone which was remarkably fragile in consequence of the absorption of a part of its bony substance. There was no trace of cancer of the bone. The right humerus, which had a solid callus with obliteration of the medullary canal, was nevertheless very fragile below the fracture.

We had then, in this case, the example of two almost spontaneous fractures; one of the humerus which had been followed by consolidation; the other of the femur which was not consolidated; hence the conclusion that in cases of this kind consolidation is possible, but may also fail.

II. *Iterative fracture of the left femur.*—I called your attention to No. 2, a young man 19 years old, who has been under treatment here for 50 days, for fracture of the shaft of the femur below its centre. As the callus seemed to be very solid on the 45th day, and as I no longer found any abnormal mobility, and as, furthermore, I did not wish to keep his knee immovable for too long a time, I removed the Scultet bandage. But I had expressly told the patient not to get up, intending to keep him in bed until the 70th or 75th day, and then to make him begin with crutches. But this is what happened: the day before yesterday, the 48th day since the accident, he got up and walked a short distance, supporting himself on the adjoining beds. He slipped, fell, and broke the callus. The next morning we found abnormal mobility and crepitation as at the beginning, and the patient was again unable to raise his heel from the bed. I reapplied the Scultet bandage, prescribed 30 grains of the phosphate of lime to be taken twice a day, and told the patient he would have to remain in bed for three months.

This is not the first time I have seen this rupture of the callus, or iterative fracture; I saw two other examples of it a few years ago; one at Cochin, the other at Beaujon, and both of them were young men whose apparatuses I had removed about the 50th day, forbidding them to leave the bed, but both had disobeyed and had fallen in the wards.

The first thing to be remembered from these facts is that the callus may acquire by the 45th to the 55th day, sufficient solidity to prevent communication by our hands of the movements which are pathognomonic of the persistence of the fracture, but nevertheless not be solid enough to bear either the weight of the body or an inflection during a fall.

For you observe that I do not know if, in my three patients, the fracture was produced by the fall, or if the fall was the consequence of the rupture of the callus under the influence of the weight of the body. However that may be, the practical conclusion is that the patients must not be allowed to get up as soon as we find immobility, and we must wait for at least the 70th day before allowing them to leave the bed. Until that time, the callus, although it no longer shows abnormal mobility, is still too fibrous or too little bony to resist an unexpected impulse or inflection. For it is only peripheral and not interfragmentary.

Let us remember another fact, that these iterative fractures are to be feared, especially in young people (and it would undoubtedly be the same for children). The callus certainly forms a little more rapidly at this age than in adults, but it needs, none the less, from eight to twelve weeks to obtain the solidity necessary for walking. Now, we can easily persuade an adult to remain in bed a fortnight after the apparatus has been taken off. During this time, we use friction, massage, and communicated movements, to correct the stiffness of the knee and foot.

But it is much more difficult to keep a young man in bed after he has been relieved of the restraint of his apparatus, and you must not expect them to obey your instructions upon this point. Consequently the wisest plan in their case is to leave the apparatus in place until the 65th or 70th day, while in adults upon whose reasonableness you can place more reliance, you may remove the apparatus from the 50th to the 60th day, and let them walk a fortnight afterwards. The disadvantage of the more prolonged immobility in young people is compensated for by their lesser aptitude for anchylosis and the prolonged stiffness of the concomitant traumatic arthritis.

In children, until the age of fifteen years, I advise you not to leave the apparatus on longer than the 45th day, because consolidation goes on more rapidly ; but it is still prudent, in order to avoid iterative fracture, not to let them walk, even upon crutches, before the 60th day.

You will not often have occasion to see the callus break a second and a third time, because, warned by the first rupture, you will take care to recommend sufficient rest in bed and phosphate of lime, which will ensure a solid recovery. If, however, the patient does not obey your instructions, the fracture of the femur may be reproduced three or four times.

I was consulted in 1864 by a young man from Saint-Pierre-Calais, 25 years old, who had broken his left femur six times in the course of twenty months. A remarkable fact in the case was that the fracture did not occur when he began to walk, but from the 8th to the 15th day afterwards, and generally in consequence of a slight effort, either to save himself from falling, or to run. Once, indeed, the fracture took place while he was dancing. Each time the patient had been allowed to get up on the 45th day. He had reached the 40th day of his sixth and last accident, when his father came to Paris to consult me upon the means of preventing these iterative fractures. I told him to keep on the Scultet apparatus, which had been applied, for two entire months, and not to allow the young man to leave his bed until the end of the third month, and to give phosphate of lime during the whole time. These prescriptions were followed and the fracture was not repeated.

I saw the young man himself in November, 1869, at Saint-Pierre, where I had been called to see another patient. He had remained perfectly well, but with a shortening of $2\frac{}{4}$ inches, a limp, and the necessity of using a cane, all of which did not prevent him from walking a great deal, even for several leagues at a time, without difficulty.

LECTURE XXIV.

FRACTURES OF THE LOWER EXTREMITY OF THE RADIUS.

Consecutive and late phenomena. I. First patient on the fiftieth day of the fracture—Study of the shape and functions—Rigidity of the articular synovial membranes, due to arthritis by proximity in the wrist, and arthritis by immobility in the fingers—Rigidity of the tendinous synovial membranes. II. Another patient (woman 69 years old, ninetieth day)—Slower and perhaps impossible recovery from the same rigidities on account of her advanced age.

GENTLEMEN: I have brought to the amphitheatre, that you may all see them better, two patients who have been treated in our wards for fractures of the lower extremity of the radius. One of them is a man 38 years old, the other a woman 69 years old.

I. The first has reached the fiftieth day of his accident. I treated him for five days with poultices, and at the end of that time applied Malgaigne's apparatus, which you often see me use, with a cotton cushion upon the posterior part of the lower fragment, and another upon the anterior portion of the upper fragment; over these a graduated compress, and a splint upon the palmar surface of the forearm and hand, and graduated compress and splint upon the dorsal surface; the whole kept in place by means of three bands of diachylon a yard and a quarter long and an inch wide. Of course before applying this apparatus I had done my best to make reduction by the manœuvres of extension, counter-extension, and coaptation. You remember the bandage was removed a fortnight after its application, that is, the twenty-first day after the accident, and that the patient left us three or four days afterwards.

He returns to-day, the fiftieth day after the fall, to consult us for persistent trouble in the hand. I call your attention to two principal points; the shape and the functions.

1. *The shape of the wrist and forearm.*—At the wrist our eyes detect no irregularity and no trace of the characteristic silver-fork deformity which existed at the beginning. But by comparing this region with that of the other side, we find it is a little larger, and if we then feel

of it, so as to better appreciate the difference, we find under the skin a superficial and general induration which can be due to nothing else than the swollen radius. We have then here another example of that variety of bone lesion which so often follows suppurative or non-suppurative osteitis, and which we find especially in non-scrofulous subjects, that is, hyperostosis. I next compare the relative positions of the two styloid processes, and find them the same upon both sides. I therefore infer that the styloid process of the radius, which underwent a slight ascension at the time of the accident, has been restored to its place by our manœuvres to make reduction, and has remained there. I am pleased with this result; for in many cases, after fracture of the lower extremity of the radius, the styloid process remains higher up the arm, so that its point is upon the same transverse line with that of the ulnar. The reason of this is that, the fracture being with penetration, the two fragments cannot be separated from one another at the moment of reduction, or else that, reduction having been made, absorption of that part of the spongy tissue which was most crushed at the time of the accident has taken place between the fragments before consolidation. I suppose that in our patient, who is still young, the spongy tissue had not undergone before the accident the rarefaction which predisposes both to reciprocal penetration in cases of fracture and to considerable attrition. That is why the radius has recovered almost its normal length. I find in this condition of affairs the advantage that the articular surfaces of the lower radio-ulnar articulation are not so much deformed as when there is permanent ascension of the lower fragment and diminution of the length of the radius. This condition is favourable to the ultimate restoration of the movements of this articulation.

Finally, to finish with the shape, I ask you to compare the volume of the two forearms. The left one is a little smaller than the right, and the difference is due to the smaller size of the muscles. This then is another example of the slight and unimportant, but still real, muscular atrophy which follows almost all fractures of the long bones, and of which I so often have occasion to speak.

2. *The functions.*—As for the functions, you see that this man can execute without pain the movements of flexion and extension of the wrist and fingers. But you also see that these movements, especially those of flexion, are more limited than in the normal condition, and that in this respect they are far from being what we desire. The patient also says that he has but little strength in his hand, can carry nothing with it, and uses it very little, even in dressing himself. I now ask him to make the rotary movements which give pronation and supination, and you see that they are incomplete, that they scarcely take place at all in the lower radio-ulnar articulation, and that they are executed almost exclusively at the shoulder.

How can we explain this diminution of the movements and the weakness of the limb which is the consequence? It is not due to the insufficiency of the muscles; for, on the one hand, the atrophy of which I have spoken is slight, and, on the other, we often see atrophy of this kind, and we know that it does not diminish the extent of the movements, since the muscular fibres continue to receive from their nerves, which have remained intact, the impulse necessary for their contraction. That which explains this functional trouble is especially the rigidity and the insufficient extensibility of the articular and tendinous synovial membranes. As for the first, those placed near the rest of the fracture have participated in the inflammatory process, and have lost, in consequence of the traumatic inflammation of which they have become the seat, a part of their extensibility and suppleness. These are the radio-carpal, the carpal, and lower radio-ulnar synovial membranes. The others, placed further from the fracture (I refer to those of the fingers), have not been inflamed in consequence of their proximity; but we have the right to believe that they have become altered and modified as a result of their immobility. You remember that M. Teissier, of Lyons,[1] published a work upon the effects of prolonged immobility of the joints. But he did not make a distinction between the large and small articulations. Now, the first may remain immovable for several weeks, and even for several months, without losing the natural suppleness and extensibility of their synovial membranes. Notice patients who have had a fracture of the leg or of the thigh: the knee-joint in the first, and the hip in the other have remained immovable for a long time, and yet the moment you cease the treatment you can communicate extended movements to them, and without finding much resistance. The large articulations become rigid only when consecutive inflammation has invaded them, as takes place quite often in the tibio-tarsal articulations after fractures of the leg, and always in those of the knee after fractures of the thigh.

It is not the same for the small articulations of the fingers. They are too far from the radius (and, moreover, the same thing follows fracture of the shaft of the forearm or of the humerus) for us to admit the propagation to them of the phlegmasia developed at the seat of the fracture. If they become rigid, it is the immobility alone which is the cause. In consequence of their inaction, their synovial membranes have become dry and shrunken, and have lost their suppleness. That is why they oppose flexion of the fingers; and if a little force is used, the stretching to which they are subjected causes pain.

As for the other synovial membranes, those of the tendons, it is probable that that of the extensor tendons behind, and the great carpal one of the flexors in front, have been attacked in consequence of their proximity to, and by propagation of the phlegmasia which is developed at the fracture, and that, consequently, they have become rigid. I do not deny that the immobility may have contributed to a certain extent to this result But basing the opinion upon the fact that immobility alone does not cause rigidity of the large tendinous synovial membranes when a centre of irritation, like a fracture or dislocation, is not near them, I am inclined to believe that most of the rigidity is due to synovites by propagation.

Do not be surprised at these results, gentlemen; they are very common, and you will often meet with them in practice; indeed, you must even take care to forewarn your patients of them, that they may know that the difficult movements of which they will have to complain for a long time after fracture of the lower extremity of the radius, are not due to insufficient or unskilful treatment, but are a consequence of the disease itself.

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[1] Teissier, Gazette Médicale, 1841.

Moreover, I tell them not to worry, for all these functional troubles will disappear in time. The articular and tendinous synovials will recover their polish and then their suppleness by use, and it is very probable, if I may judge by the facts of the same kind which I have observed, that in three or four months the movements will have recovered their natural extent and ease. Those of pronation and supination will be the slowest to return, but I expect their perfect return all the more confidently, because the radio-ulnar articular surfaces are not notably deformed. This relatively favourable prognosis is further justified by the fact that the patient is young and not rheumatic; you remember that those are favourable conditions.

As for therapeutical advice, I shall tell the patient to communicate moderate movements with the other hand to the fingers and wrist, and to apply friction every morning and evening with pure lard, or lard mixed with alcohol, and to take two sulphur baths every week.

II. The other patient is a woman 69 years old. Her fracture was received three months ago, and you can see that notwithstanding the length of time that has elapsed, the shape and functions leave much more to be desired than in the preceding case.

First, the silver-fork deformity is still quite marked, although at the time of the accident I made the manœuvres of extension, counter-extension, and coaptation, and employed the same apparatus as for the other. Moreover, the styloid process of the radius is higher than it should be. Its summit is on the same transverse line as that of the styloid process of the ulna. What is the reason of this faulty conformation? It is due to two causes: first, to this that the age of the patient having caused rarefaction of the cancellous tissue of the lower extremity of the radius, this tissue was crushed by a fall upon the hand, and then, as described in the excellent study of this accident by M. Voillemier,[1] the fragments penetrated one another, and became so interlocked, that my efforts were powerless to change their reciprocal positions. Second, it is probable that part of the crushed bony tissue was afterwards reabsorbed, which would diminish the chances of a permanent return of the lower fragment to its proper place. Consolidation, nevertheless, took place, because, as I have often told you, consolidation goes on well and rapidly in the cancellous tissue of most long bones (I except intra-capsular fracture of the neck of the femnr); but the callus has remained irregular for the reasons which I have just given.

As for the functions, you heard this woman complain of pains which she feels when at rest, and which increase when she tries to move the wrist and the fingers. Voluntary movements are very limited, as much on account of the pain which they provoke as by insufficiency of the muscles. I try to communicate movements, and I find that they have but little extent, and are stopped by an obstacle which cannot be overcome. It is very probable that this obstacle is the painful rigidity of the articular and tendinous fibro-synovial tissues. This is already very marked in the radio-carpal articulation, and is still more so in the phalangeal and metacarpo-phalangeal articulations. Pronation and supination are also much hindered. In short, this patient cannot use her hand for any of the ordinary purposes, although it is evident that the muscles are not paralyzed.

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[1] Voillemier, Archives Générales de Médecine, 1842, tome xiii. p. 261.

Why this powerlessness? How long will it last? What can we do to suppress or diminish it?

I have already given the explanation. There has been arthritis of the radio-carpal and inferior radio-ulnar articulations near the fracture. This arthritis has passed to the chronic condition, leading to the retraction of the synovial membrane and of the surrounding fibrous tissues, retraction which is the consequence of most prolonged arthritis when they do not take on the fungous form or white swelling. The articulations of the fingers have become inflamed and rigid, in consequence of prolonged immobility. Two causes which did not exist in the preceding patient have contributed in this one, not to the development, but to the long duration of these arthrites; these are her advanced age, and the rheumatism from which she has been suffering for many years.

This union of disadvantageous conditions—the traumatism, immobility, age, and rheumatism—makes me fear that the powerlessness will last much longer than in the man. I advise the same treatment, friction, massage, and sulphur baths. But I am not sure that they will lead to a complete recovery. The movements will undoubtedly recover a little of the extent which they have lost, but will never recover it entirely, and there will always remain some pain. In a word, the condition which you see, instead of being temporary as in the other patient, will undoubtedly be permanent, and will constitute an infirmity.

LECTURE XXV.

FRACTURES OF THE LOWER EXTREMITY OF THE RADIUS—Continued.

I. Early phenomena and symptoms of recent fracture—Study of the mechanism—Inflection, tearing off, crushing, and penetration—Treatment—Immediate reduction—Restraining apparatus the sixth day—Necessity for great watchfulness if it is applied sooner. II. Immediate reduction—Simple retention with Robert's apparatus. III. Recent fracture in a young man 18 years old—Absence of crushing and penetration—Probability of a cure without deformity and with prompt return of the functions.

Gentlemen: We have at this moment in our wards three patients affected with recent fracture of the lower extremity of the radius.

I. The first is the one in whom the symptoms are the most marked. He is a man 58 years old who slipped on the ice yesterday morning and fell. While falling he threw both hands forwards, and the weight of his body was received principally upon the palm of his right hand. No crack was heard, but sharp pain was immediately felt in the corresponding wrist, and the patient, on looking at it, was struck to find it sensibly deformed. He was not able to use it, and saw at once the necessity of coming to the hospital.

You notice the deformity of the wrist. It is perfectly characteristic, and is sufficient in itself alone to establish the diagnosis. Without going into many details, which would tell you less than the simple sight of it, I call your attention only to three things:—

1st. An exaggerated projection backwards immediately above the articulation of the wrist, with a smaller projection upon the palmar surface, below which is a slight depression corresponding to the prominence on the dorsal surface; these prominences and depressions together constituting what Velpeau called *talon de fourchette*.[1]

2d. The level of the styloid processes. That of the radius instead of having its point one-third of an inch lower than that of the ulnar, as in the normal condition, is exactly on the same level, that is, it has been carried up the arm. This symptom, to which I attach great value, was pointed out by Professor Laugier.

3d. If, while the wrist is flexed, you press upon the dorsal surface of the forearm immediately above the prominence I mentioned, you feel first the depression, and then in front of it, and deeper, a sort of tense elastic cord, formed by the tendons of the radial muscles (extensores carpi radiales longior and brevior) which have been removed from their normal position by the projection of the lower fragment backwards. This sign also was indicated by Velpeau, who gave it the name of the cord of the radials.

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[1] Silver-fork fracture of the English writers.—Trans.

The hand is very slightly inclined towards its ulnar border, and consequently has not been drawn outwards, as occurs in certain exceptional cases which undoubtedly were seen quite often by Dupuytren, and led this great surgeon to use a curved metallic ulnar splint, with external convexity, along which he bound the cubital border of the hand so as to correct the deviation outwards.

I have made very little search for crepitation and mobility. The patient suffered a great deal and I did not need these symptoms to complete my diagnosis. The deformity was sufficient, for it could not be explained otherwise than by a fracture of the lower extremity of the radius, a lesion which offers this clinical peculiarity that it can be recognized in many cases by the deformity alone. There is, however, a circumstance which might lead us into error, I mean a contusion or a sprain occurring in a wrist which remained deformed after an old fracture of the radius. The patient would then present himself to us with the characteristic deformity due to the anterior fracture, and in addition the pain and difficult movements caused by the recent injury. It would then be quite natural to think of a recent fracture. To avoid this error I questioned the patient. I asked him if he had ever had his wrist broken, and it was after having received an absolutely negative answer that I admitted without the slightest hesitation the existence of a recent fracture.

Let us see, before going any further, 1st, by what mechanism the fracture has been produced; 2d, the cause of the characteristic deformity.

1st. As for the mechanism, I have to tell you that in this fracture, as in most others, the information furnished by the questioning and examination of the patient does not solve the problem.

We find indicated in our authors three principal modes according to which the lower extremity of the radius may be broken.

According to most of them, to speak only of contemporaneous ones, the radius is caught, at the moment of a fall upon the palm of the hand, between two opposing forces, the resistance of the ground and the weight of the body transmitted through the arm and forearm to the ball of the hand. The lower extremity of the radius tends to bend backwards under this double pressure. If the movement is carried too far, it breaks, and the more easily if the cancellous tissue has been rendered more fragile by the spontaneous rarefaction which is the consequence of age, which arrives more or less early according to the subjects, and indeed in certain persons is really premature. I do not claim that this theory of inflection has been presented in an absolute and exclusive manner, but it has at least been formulated as one of the conditions of the mechanism in certain works and notably in those of Foucher,[1] Am. Bonnet, and Philippeaux.[2]

Others, and especially Nélaton[3] and Voillemier,[4] insisted upon this circumstance, that in the fall upon the palm of the hand the radius might be broken by the pressure to which its cancellous tissue is subjected. I regret that they did not use more explicitly the word *crushing*, which would have made the idea more easily comprehended. But, if the word is not at all or not sufficiently accentuated, the fact certainly is, and it was the theory of crushing which led M. Voillemier to study penetration which is only a consequence of crushing.

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[1] Foucher, Bulletin de la Société Anatomique, 1852.

[2] Philippeaux, Bulletin de Thérapeutique, 1850, p. 207.

[3] Nélaton, Eléments de Pathologie, tome 1er.

[4] Voillemier, loc. cit.

More recently M. O. Lecomte, in a long and interesting work,[1] has opposed the theory of crushing, which he makes the mistake of not designating by its real name, and which he calls the *theory of the direct transmission of the shock to the radius*, and, developing a theory which had already been advanced with reserve by Voillemier and Foucher, maintains that in falls upon the palm of the hand the wrist draws backwards and stretches the anterior ligaments of the radio carpal articulation, that these ligaments exert traction upon the anterior portion of the lower extremity and detach it by a mechanism which is that of tearing.

Here then are three theories—forced inflection, crushing, and tearing. Which must we adopt for this patient? Which must I advise you to adopt for most cases? Neither one exclusively, and all three together, with predominance of one or the other of them according to the age of the subject.

For, as I told you a moment ago, the clinical documents do not furnish any peremptory reason in favour of the intervention of one of these mechanisms rather than of another; and, on the other hand, I do not feel disposed to apply to this patient, any more than to all others, the results of experiments upon the cadaver. I know that some surgeons, especially Nélaton, Voillemier, and O. Lecomte, have tried to clear up the question by experiments of this kind. But there are two conditions which cannot be reproduced upon the cadaver, and which contribute greatly to the production of the lesion upon the living subject.

The first is muscular contraction. I would not go so far as to admit with Pouteau[2] fracture of the lower extremity by muscular contraction, and especially by that of the long supinator, but I do not the less admit that in a fall upon the palm of the hand, the contraction of all the muscles of the forearm, excited by emotion and the instinctive desire to avoid danger, ought to draw the ball of the hand upwards and increase the pressure of the bones of the carpus against the articular facet of the radius, a pressure which favours crushing.

The second condition is this peculiar fragility induced by senile rarefaction. It varies much according to the subjects, and it was not noted if it existed or to what degree it existed in the cadavers used for the experiments.

If, for these reasons, I cannot tell you with absolute certainty what took place in our patient at the moment of the accident, I can at least offer you well-founded presumptions. Now, there is one condition which exists in him as in most of those who have passed the age of fifty years, that is, the rarefaction of the spongy tissue and the fragility which results from it. Notice that everybody falls, while walking, upon the palm of the hand, that everybody in so simple a fall does not break the radius, and that especially young people, and adults up to the age of 45 or 50 years, escape this injury. To be produced in them it needs a more energetic cause, such as a fall while running or from a high place.

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[1] Lecomte, Archives de Médecine, 1860, tomes xvi. and xvii.

[2] Pouteau, Œuvres posthumes, tome ii. p. 251.

What is there then peculiar in old people that can explain this lesion? It is not the weight of the body nor the rapidity of the fall which accounts for the easy production of the fracture. It is and can be nothing else than the fragility in question. Now this fragility is put to the proof especially by the crushing, that is, by the pressure from above downwards and from below upwards, to which the radius is subjected in a very simple fall, and the intervention of this mechanism has the advantage of explaining equally well the fractures after a fall upon the palm and those upon the back of the hand. I admit that in a fall upon the palm inflection backwards and tearing intervene to a certain extent, and that the anterior portion of the solution of continuity may be produced principally by them, but the crushing of the posterior portion is always the principal and even initial phenomenon.

I said that in the second place we had to explain the deformity. It is the consequence of what we know of the mechanism. At the moment of the fall the lower fragment is forced backwards by the pressure of the ball of the hand against it, undergoing, as Foucher pointed out, a slight movement of rotation about its transverse axis. Sometimes this movement is very slight, or when once produced it corrects itself, and this is what explains fractures without deformity or with a very slight one; sometimes the fragment remains in its new place, fixed there by muscular tonicity or by penetration, and then the deformity persists, being remediable if the muscles are not too energetic, or if the penetration is not accompanied by an insurmountable interlocking, and irremediable, on the contrary, if the opposite conditions exist.

As to the prognosis, remember that we have not to deal here with a serious disease; first, because life is not at all endangered, and then because in all probability consolidation will be soon obtained. In general, 20 to 25 days of immobility and retention suffice. At the end of this time, of course, the functions will not have recovered their integrity, and it will need considerable time for the articulations of the wrist and hand, as well as the neighbouring tendons, to recover their motions and their normal suppleness. But the consolidation will take place by a perfectly bony callus. The callus of course would only remain fibrous in case the patient was still older.

The gravity of the affection lies in the slowness of the return of the functions, slowness of which I have already had occasion to speak, and which will be all the greater here since the patient is nearly sixty years old.

As for the treatment, I remind you of the precept which you often hear me mention for fractures of the upper limb, that of not employing a restraining apparatus at first, and to wait until the inflammatory period is over to envelop the limb and immobilize the fracture. I applied flaxseed poultices sprinkled with lead-water or spirits of camphor, and told the patient to stay in bed. To be sure, he might be allowed to get up, keeping his hand and forearm in a sling; but the movements would probably cause pain, and it is better to keep quiet. Before applying the first poultice I made the manœuvre of reduction. While one assistant held the upper part of the forearm firmly with both hands, and even drew it slightly backwards, and another grasped the patient's hand and drew it forward with a certain force, I embraced the wrist with both hands and exerted the pressure necessary to press the lower fragment forwards and the upper one backwards, and thus correct the deformity. I did thus correct it, and you may have seen that when we laid the arm down, the wrist had recovered its normal shape. At first I hoped that this result would be maintained, as I have seen on several occasions, and that then it would be useless to have recourse afterwards to a restraining apparatus. But my hope was not realized. In a few moments you saw the deformity reappear, and you must have concluded, as I did, that if we wished to suppress it definitively it was necessary to maintain, by means of a restraining apparatus, the result obtained by the reduction.

Now for what reason did I decide to wait a few days before applying this restraining apparatus? Because in certain cases the apparatus, if applied immediately, is found to be too tight and causes pain, eschars, and even complete gangrene of the hand and forearm. Do not forget these two things; in fractures of the lower extremity of the radius, as in all others, there is, during the first five to eight days, an inflammatory period, during which the limb swells. Then you have here two quite superficial arteries, circulation through which is easily diminished or checked by the compression exerted by the apparatus. If, then, you apply too tight a bandage, you may thereby stop the circulation and cause the accidents I mentioned. If you apply one which is not too tight at first, it may happen that, inflammatory swelling of the forearm occurring, the apparatus may exert at the end of twenty-four or forty-eight hours a constriction upon the tumefied limb which it did not at the beginning. I am far from wishing to exaggerate the danger. Certainly you may apply an apparatus early if you are sure of not making it too tight, and especially if you are able and willing to see the patient twice a day, and to loosen or even remove the bandage in case pain or purple swelling of the fingers warns you that the circulation is troubled.

Beware of the first of the symptoms, the pain. I know the lamentable history of a woman, 70 years old, whose surgeon applied the first day a roller bandage for a fracture of the lower extremity of the right radius. A distance of two leagues separated the patient and the surgeon. It was agreed that the latter should be sent for if rather severe pain should be felt, but that otherwise he should come only at the end of six days. The patient did not suffer, or suffered too little to send for the surgeon, and when he arrived he found the hand and forearm gangrenous. A very unpleasant litigation resulted.

It is to avoid a complication of this kind that I advise you not to apply an early apparatus unless you are sure of being able to watch it, and it is still better to apply only poultices during the first five or six days. These recommendations, which are good for all subjects, are especially applicable to children, women, and old people, that is, to all feeble subjects whose circulation is easily checked by compression of the radial and ulnar arteries. It is for those especially that I recommend you not to place an apparatus upon the broken forearm before the fifth day, whether it is a fracture of the extremities or of the shaft. You may reserve, if you choose, immediate application for vigorous adults, but always on condition of exercising a very close watch over it.

At the hospital you see that I reject in all cases the immediate use of the constricting bandage, because, on the one hand, I wish to fix in your minds the possible dangers of its use, and because, on the other hand, this action does not affect disadvantageously the after-treatment and the consequences of the injury. I see only one inconvenience in it for the patient—that of being compelled to remain in bed; for the simple envelopment in a poultice does not sufficiently immobilize the fracture, and exposes it to painful jars if the patient leaves his bed and walks about.

The treatment for this patient will be as follows:—

Poultices sprinkled with spirits of camphor will be kept on for five days, and on the sixth I shall apply the restraining apparatus which I have already described (see page 193), the one which I borrow from Malgaigne, and by means of which pressure is made upon the dorsal and palmar prominences. It is completed by graduated compresses and splints kept in place by three strips of diachylon plaster four feet long and two inches wide, so as to form what I call an open apparatus, by means of which the parts can be watched between the pieces of the apparatus, and relieved by loosening the bands if it is found that, in spite of the late application, the constriction has become too great.

The bands will be removed at the end of a week, the forearm carefully examined, and a new attempt at reduction made if it is found that the shape is not all that could be desired. The apparatus will then be reapplied as at first, and left in place until the twenty-first day, counting from the time of the accident. I advise you never to leave bandages for fracture of the lower extremity of the radius in place beyond this time; first, because twenty-one days are sufficient to obtain consolidation, and then because a more prolonged immobility would increase the painful stiffness of the fingers which I have pointed out as one of the consequences of the immobility caused by apparatuses for fracture of the upper limb.

Finally, after the bandage shall have been removed, I shall prescribe communicated movements, friction, massage, and sulphur baths, so as to shorten as much as possible the duration of the powerlessness to which the patients are condemned for a longer or shorter time, according to their age, in consequence of these fractures of the wrist.

II. The second patient of whom I have to speak interests you especially from a therapeutical point of view.

He is 57 years old and has already been in our wards for a fortnight. You remember that on the first day I made reduction as in the preceding case. The attempt was successful, the characteristic deformity ceased, and, differing in this respect from the preceding one and from most of those in which I make the same attempt, the result was maintained, the displacement was not reproduced. Seeing that the reduction persisted, I did not apply the open apparatus which I habitually use, but contented myself with placing the forearm upon a long bag filled with chaff and a splint, and fixing it with a roller bandage. The cushion and the splint did not extend beyond the wrist, so that the hand was left free and flexed. This very simple apparatus, which was proposed by Robert, has the advantage of neither compressing nor immobilizing the hand too much, and it also diminishes the duration of the consecutive stiffness of the fingers. I removed it this morning, and you saw that the shape of the wrist was good, and that the functions, that is, the movements, although still very imperfect, were much less limited than in patients upon whom the ordinary restraining apparatus has been left for twenty-one days. I recommend this mode of treatment. It will not do for those patients in whom a first or second well-made reduction is not maintained. But it is excellent for those in whom the reduction maintains itself without retention. The immobility which it supplies is sufficient for the accomplishment of the consolidation, and it has the great advantage of diminishing the duration of the painful stiffness and immobility which, as you know, are the principal inconveniences of fractures of the lower extremity of the radius.

III. The last patient of whom I have to speak is a young man 18 years old, who fell from a ladder, a distance of about ten feet, striking upon the palm of his left hand.

We found upon him the first day the characteristic antero-posterior deformity, without marked inclination of the hand towards the radial or the ulnar side. In addition I easily felt mobility and crepitation, and I was able at once to make reduction, which, however, did not remain. Nothing in the way in which the accident was produced enlightened us upon the mechanism of the fracture; but in taking account of the age which authorizes us to believe in the existence of a non-rarefied and still very solid cancellous tissue, and of the facility with which I was able to move the lower fragment and feel crepitation, I think that the mechanism of crushing has not intervened, that the cancellous tissue has not broken into multiple fragments as is often the case in old people, that reciprocal penetration of the fragments has not taken place, and that finally the lower fragment has not split down to the radio-carpal articulation, as it does quite often in people advanced in age.

From all of this I conclude that the regular shape obtained by reduction and by the restraining apparatus which I applied the sixth day will be maintained, and that we shall not have consecutive deformity due to the disappearance, by absorption, of part of the cancellous tissue, as is sometimes observed after fractures by crushing and penetration.

I hope, furthermore, that the arthritis by proximity will be less severe and of shorter duration, for this arthritis, which takes place in almost all cases, is necessarily more marked in those it which the fracture invades the articular surfaces, than in those in which it does not. Finally, this is a young man who has never had rheumatism, and you remember that these conditions of age and health are favourable to the termination by resolution of traumatic arthritis.

I might have discussed the question of diagnosis, and asked if, instead of a fracture, I should not consider this a tearing off of the epiphysis. I do not think so, and for these reasons: the simple tearing off of an epiphysis is rare, and when solution of continuity takes place at the point occupied by an epiphysary cartilage, anatomical observation has shown that it is produced almost always partly upon the cartilage and partly upon the bone, so that a real fracture coincides habitually with rupture of the cartilage. Moreover, an epiphysary separation adds absolutely nothing to the results, nor, consequently, to the prognosis or treatment. All the clinical interest of the lesion, in such a case, lies in this peculiarity, that the spongy tissue is solid, not rarefied; that it must have escaped crushing, penetration, and multiple fragmentation, and that finally the age predisposes to the prompt return of the suppleness and polish of the articular and tendinous synovial membranes which have been consecutively inflamed. We have only reached the twelfth day, but I hope, if the patient consents to come back and see us two or three weeks after he leaves us, to be able to show you how much more rapid and indolent the restoration of the movements has been than in the older patients.

LECTURE XXVI.

FRACTURE OF THE CLAVICLE BY MUSCULAR ACTION.

Considerations upon the mode of production of fractures of this bone—Case of a fracture by muscular action—The fracture is without rupture of the periosteum and without displacement, as in children—Examination and criticism of apparatus invented for fracture of the clavicle—Preference given to the sling—Substitution of the double sling for Mayor's simple one.

GENTLEMEN: We have at this moment at No. 43, Ward Sainte-Vierge, a man, 40 years old, affected with fracture of the clavicle, in whom this lesion was produced in an unusual manner.

You know that, strictly speaking, fractures of this bone may be occasioned by direct causes, such as a heavy body falling upon the clavicle, or a violent blow with a stick. But cases of this kind are much the least frequent, and in any case I have not observed the more or less serious concomitant lesions, generally called *complications*, which, in other bones, are produced by the vulnerant bodies which cause the direct fractures: I refer to considerable effusions of blood, phlyctænæ, eschars, and wounds. It is a remarkable fact that fractures of the clavicle are very rarely compound, and that the skin remains almost always intact, even when one of the fragments makes a very pointed and apparently very threatening prominence under it. I attribute this chiefly to the fact that direct causes rarely take part in their production.

The most frequent fractures are those which are produced indirectly by the action of causes which tend to increase the natural curves of the bone, and to make it break at some point of one of these curves, as when one falls upon his shoulder, or even the elbow, and the clavicle is thus subjected to exaggerated pressure between the sternum and the ground.

Another, which is observed quite rarely, is fracture caused exclusively by muscular action. To this category belongs the one of which I shall speak to-day.

On the 12th December, 1868, this man was helping to place upon the shoulder of a comrade a large, heavy piece of marble. At the moment when he lifted it, he felt a slight crack in his right shoulder, and was unable to continue. The next and the following days he was not able to work as usual; nevertheless, he waited a week before coming to the hospital.

As he had received no blow upon the clavicle, and had not fallen upon the shoulder, I did not think at first of a fracture, and I examined the deltoid region and the right scapulo-humeral articulation. Not finding any lesion at these points, I carried my eyes and then my fingers towards the clavicle. I found at the middle of this bone a round, quite uniform swelling. Then by pressing with one finger upon this point, and gently moving the two ends of the clavicle in opposite directions by seizing each one with one hand, I felt very distinctly a fine crepitation and abnormal mobility.

It is evident then that the clavicle was broken, and as there had been intervention neither of a direct blow, nor of the usual indirect cause, we are authorized to say that the fracture was produced by muscular action; that is to say, that the clavicle—drawn powerfully upwards by the sterno-cleido-mastoideus and the trapezius when the effort was made to lift the weight, and drawn downwards at the same time by the contraction of the deltoid and pectoralis magnus, which take their fixed point upon it to move the humerus—was so forcibly pulled in two different directions that it broke at the point where undoubtedly it was weakest.

It is true that if we consider the usual solidity of the bone we have to doubt whether it could be overcome by muscular contraction, and we ask ourselves whether the fracture had not been prepared in this patient by a fragility due to an osteo-sarcoma, or to syphilis, or to the peculiar osteitis which Malgaigne pointed out for other bones, and which must be placed in the category of rarefying osteites.

Now, the commemoratives were entirely opposed to the first opinion, for the patient had not before the present accident any tumour which could be considered as cancerous.

On the other hand, he has not had syphilis. And moreover, I am by no means convinced, as I have already said when speaking of spontaneous fracture of the femur, that constitutional syphilis makes the bones fragile, and for the moment I know of no fact which proves that syphilitic osteitis sometimes takes on the rarefying form. Undoubtedly it is not impossible, but it has never been proved by observation, while, on the contrary, there is no lack of cases in which syphilitic periostitis, called also periostosis, has terminated in a permanent increase of size, or hyperostosis, indicating the intervention of a condensing osteitis.

As for the special osteitis pointed out by Malgaigne as preparing the way for spontaneous fractures, we have no positive sign which authorizes us to believe that it has existed in our patient. Rarefying osteitis of the compact tissue, indeed, is only manifested to us by physical signs, and the only functional symptom which might cause it to be admitted is prolonged pain at that part of the limb where rarefaction takes place. As our patient declares he has had no pain of this kind, I cannot say that his fracture has had a rarefying osteitis for predisposing cause.

Notice two things here: first, it may easily be that the slow and prolonged osteitis which terminates by rarefaction and fragility was indolent. Second, it is not impossible, as I have already explained, that the fragility may be due to a rarefaction independent of the inflammatory condition, rarefaction comparable to that which senility leads to in the cancellous tissue of many long bones and which is produced without pain. I there touch upon a question which has been but little studied. Our anatomo pathological studies have made us acquainted with senile rarefaction of the cancellous tissue; but they have produced nothing yet for the analogous trouble of nutrition of which the compact tissue becomes the seat as age increases, and even without senility, or without the influence of a sort of premature senility. I should like to have this question studied; it might enable us to understand better than we can to-day the facility with which direct or indirect causes produce fracture of the most voluminous bones, such as the tibia, the patella. I have long asked myself whether, in such cases, premature senile rarefaction has not induced a fragility which has facilitated the production of the fracture by chance causes apparently quite slight, and it is a subject which I recommend to your investigations.

But it is not only with respect to its etiology that our fracture is an unusual one; it is so by its physical symptoms also.

I said that I had found a little mobility and fine crepitation; but I did not speak of a projection upwards of the inner fragment, nor of a lower prominence formed by the end of the outer fragment pulled downwards and pressed under the other. In other words, I have not spoken of the prominences and deformities which are most frequently found in fractures of the clavicle in adults. Why? Because these prominences and this deformity do not exist here. We see only a round tumour, rather voluminous, but regular and without inequalities. The fracture then is without displacement, and with a volume which is explained by the fact that it is a week old; that during this time the patient has not been treated, and although he has not been working he has continued to use his arm.

Why this absence of displacement? Because there has been no rupture of the periosteum, or because the fracture is toothed, and the points have remained interlocked, and the periosteum has thickened, as it does in our experiments upon animals when the fracture has been without displacement, and the fragments have been kept end to end.

This variety is rare in adults, but much more common in children, where it merits special attention on account of the difficulty of the diagnosis. I show you from time to time at the hospital consultation children four, five, or six years old who are brought to us for fracture of the clavicle without rupture of the periosteum, the principal symptom of which is a swelling, painful on pressure, at some point of the bone. Immobilization with a sling for a fortnight is sufficient to reduce the volume of the tumour and to have it replaced by a solid and scarcely visible callus.

You saw me employ for this patient the treatment which I use for almost all cases of fracture of the clavicle. It is a sling similar to that of Mayor, but which, instead of being a single triangle, is a double one, or, if you prefer, a piece of cloth, such as a handkerchief, folded so as to form a triangle with two thicknesses. The forearm is placed in the fold formed by these two flaps. The extremities of the base of the double triangle are attached to one another behind the back; the point of the posterior flap passes in front of the uninjured shoulder, that of the anterior flap in front of the injured one, and they are fixed to the ends of a compress looped around the posterior and horizontal part of the sling, which ends pass over the shoulders to meet the two points to which they are then pinned or sewed.

This simple bandage has no other object than to keep the shoulder and the clavicle immovable, and to thus favor the consolidation. In the present patient there is no other indication to be met. But in those cases where there is displacement of the fragments, you see me use the same sling. I only add, when the inner fragment projects forcibly upwards, compression on it by means of a layer of cotton and two compresses placed under the junction of the anterior point of the sling and the compress to which it is fastened.

I do not mean to say that this simple apparatus always gives perfect results, that is, cure without deformity. For fractures of the clavicle are like those of the leg. Some are without displacement, like this one and like those which we often see in children, and then the most simple apparatus is sufficient if it immobilizes. Others have a displacement which it is easy to reduce and to keep reduced. The simple apparatus does very well for these also. Others, finally, are reducible, but very difficult to maintain, because the displacement is reproduced by the slightest movement. In such cases I claim, and it is the opinion already expressed by M. Nélaton,[1] that a simple, well applied sling gives as good results as any of the more or less complicated apparatuses proposed at different times.

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[1] Nélaton, Eléments de Pathologie chirurgicale, tome 1er, p. 721.

In fact, if we study these apparatuses, we see that the principal object of most of them is to meet a proper indication. A great number, for example, from the time of Hippocrates to the end of the eighteenth century, are intended to carry upwards and backwards the outer fragment which is lowered and carried forward. Such especially was the object of those described in the works on surgery under the name of Heister's cross, Brasdor's corset, and Brunninghausen's strap.

At the end of the last century Desault showed that it was necessary to carry the outer fragment not only upwards and backwards, but also and especially outwards. For that purpose he proposed the axillary arrow-head cushion, intended to carry the humerus, and with it the scapula and clavicle, outwards, while a figure-of-8 bandage passed around the elbow of the injured side and the opposite axilla, and crossed over the broken clavicle, and held the shoulder and outer fragment up and back. Boyer's corset was also constructed to meet the same triple indication.

All these apparatuses, one after the other, have had to undergo about the same criticisms.

Desault justly reproached all that had preceded his with not meeting all the indications, with troubling the patients, and often giving a cure with prominence of the inner fragment.

Boyer objected to Desault's bandage because its hard cushion caused pain, because it interfered with respiration, and after all did not always prevent displacement of the fragments.

Boyer's apparatus is open to exactly the same objections, and when Mayor, of Lausanne, in 1834, proposed to suppress the arrow-head cushion and the complicated bands, and to substitute for them a simple sling which would carry the elbow inwards and upwards, and consequently the shoulder and the outer fragment of the clavicle outwards and upwards, he had no difficulty in showing that this bandage, reduced to its most simple expression, gave results not inferior to those of the complicated apparatuses previously used.

I have modified Mayor's sling by making it double instead of single, and thus fixing it more solidly. But I add that the main indication which it meets is that of keeping the clavicle and shoulder immovable.

Before applying it I make as complete reduction as possible by the manœuvre which consists in carrying the elbow inwards and upwards with one hand, while with the other, placed at the inner and upper part of the arm, I draw the shoulder further outwards. That having been done, I press the upper fragment downwards, and while the reduction is made I apply the sling as before described; on the following day I raise the anterior point of the sling and renew, if it has become relaxed, the pressure exerted upon the upper fragment by the compresses. But I do not believe, like all of my predecessors and some of my contemporaries, that I can maintain reduction of all fractures with displacement. I maintain some of them, but there are many which are maintained only very imperfectly, and which recover with a slight deformity and shortening. But as the objections made successively to all the methods of treatment prove, to my mind, that these defective results were inevitable and depended upon the conditions of the fracture, I accept them as such, and do not claim to be able to avoid them. These irregular calluses, moreover, cause very little inconvenience; on the one hand, they do not interfere in any way with the functions of the limb, and on the other hand, they diminish with time because the point of the upper fragment is absorbed little by little. That which remains would be disagreeable only in case the patient were a young lady and compelled to appear in society with bare shoulders.

To avoid criticism, and to protect his responsibility, the surgeon should, in such a case, give the preference to Desault's bandage, the application of which, because it requires minute care, excuses the imperfection of the result. Indeed he might, in imitation of the fact cited by Mayor,[1] propose manual retention, that is, retention with one hand left permanently upon the fracture, as the only means of certainly obtaining a cure without deformity.

I have a last remark to make upon the treatment of fractures of the clavicle. It is not necessary to leave this bone immovable for a long time; twenty to twenty-five days are sufficient for an adult, fifteen to twenty days for a child.

At the end of this time it is necessary to examine carefully the condition of the bone, and allow movement if mobility and crepitation are no longer found. In those cases where the functions of the limb are slow to become re established, it is due most often to this, that, the apparatus having been kept on too long, the articulations, and especially the small ones of the hand, have taken on, in consequence of the immobility, a greater rigidity than they would otherwise have done.

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[1] Mayor, Chirurgie simplifiée, tome ii.

PART III.

TRAUMATIC OSTEITIS AND NECROSIS.

LECTURE XXVII.

TRAUMATIC OSTEITIS OF LONG BONES.

Exposed wounds of the bones—Acute osteo-myelitis, suppurating, and putrid—Its relations with septicæmia (traumatic fever and purulent infection)—Its anatomical characteristics—Its coincidence with simple phlebitis and putrid phlebitis.

GENTLEMEN: I gladly take the opportunity which is offered to-day to show you the pieces coming from three patients who have succumbed, one of them to traumatic fever, the other two to purulent infection, after injuries which had placed the bones in contact with the air and had exposed them to suppurating traumatic osteitis.

I shall speak to you on some other occasion[1] of the relation which exists between acute suppurating osteitis and these two dangerous diseases which it often engenders: traumatic fever and purulent infection or pyæmia.

To-day I leave the latter aside to call your attention solely to the first, the osteitis, which you will not find described in our classical authors with all the details which it deserves.

I. Notice first these two tibias: they belong to that one of our patients who was admitted six days ago for fracture of the middle portion of the right leg complicated by a quite large contused wound. The skin was not gangrenous, the wound was covered with blood clots, exudations, and small superficial eschars, which are seldom lacking in the first period, that during which suppuration of the contused wound is preparing. At the same time an abundant and fetid liquid escaped from the superficial and deep layers. Twenty-four hours after the admission of the patient a burning fever came on, with 125 to 140 pulsations, the temperature rising to 105° in the evening, and varying between 103° and 104° in the morning. Then, after two days, delirium set in, so that the patient had to be tied in his bed; then the abdomen swelled, and at the end of six days, during which the leg had notably increased in size, and the wound had not ceased to furnish an abundant and reddish fetid discharge of which I shall speak in a moment, death occurred.

The fever was not preceded by a chill.

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[1] See Lecture xxix.

At the autopsy we found none of the visceral lesions of purulent infection. Furthermore, we found no appreciable lesion, either of the brain, or of the throax or abdomen. The only thing which attracted our attention was the enlargement and friability of the spleen, and the same distension of the intestines which we had remarked during the last days of the patient's life. It is evident, then, that the patient has succumbed to one of these febrile affections without appreciable lesion, upon which we can discuss for a long time without coming to a conclusion, or at least without convincing those who demand visible, material demonstrations in support of the explanation of the death. Without spending any time in this discussion I shall content myself with telling you that in my opinion, according to the negative results of the autopsy, the patient succumbed to what we have called, since Dupuytren,[1] *intense traumatic fever*, and to what we can consider as one of the varieties of traumatic septicæmia, that is, acute and primitive septicæmia.

But let us return to the examination of the bones. This is the tibia of the uninjured side. Externally it shows nothing peculiar. But I have broken it with a hammer to see the inside; you there find the medullary substance of the shaft and that of the cancellous tissue of the extremities with its reddish-yellow colour. Its injection is more marked than in many subjects, and might be considered hyperæmic. But you must remember that nothing varies in different subjects so much as do the proportions of the vascular and fatty parts of the marrow of the bones. Here, the vascular element is greatly developed; but you find nevertheless the yellow colour of the fat which crushes easily under the finger, but is not fluid; when rubbed upon paper, as I rub it now, it leaves large greasy spots. Its appearance is the same throughout; you find in it no effusions of blood, no plastic deposits, and, above all, you do not find the fetid odour which recalls that of putrefaction or maceration of the bones.

Compare this with the other tibia, the one which has been broken, and broken by an indirect cause (the patient had fallen while running, and the upper fragment had pierced the skin). Between the two principal fragments, for the fracture is slightly comminuted, you see softened blood clots which break under the fingers and give a very fetid odour; in the medullary canal of these fragments you find a substance which is much darker than that of the opposite side, is softer, and, above all, has a fetid odour. This substance shows in only a few small places the yellow colour of fat, and it greases the paper much less. At two points you find whitish deposits which are also fetid, and are composed of inflammatory products. These lesions extend about an inch beyond the solution of continuity, and on the upper fragment are continued as far as the cancellous tissue of the extremity.

If you saw the marrow of this side alone you might fail, as happened to many of our predecessors, to appreciate what I consider the very considerable morbid condition which exists. But if you notice the differences between it and the opposite side, you see that this medullary substance is profoundly altered, and that its alterations consist especially in the intimate combination of the fat and the albuminoid substance with blood poured out by the torn vessels, a disappearance, either by absorption or by escape to the outside, of a part of this fat, and finally a putrid decomposition, as well of the infiltrated blood as of the marrow itself and the exudated products. Something has taken place here which is analogous to that which occurs in a wound of the soft parts, and which always takes place in the first period of contused wounds which are preparing to suppurate. The tissues exposed to the air by the accident inflame, become partly gangrenous and putrid. But here the putrefaction has attacked the fatty parts at the same time with the blood inclosed in an almost incompressible cavity, into which the air penetrated easily as soon as a part of the liquid contents escaped. Notice, on the one hand, that this putridity has invaded that one of the fatty tissues of the body which is normally the best protected and most hidden, and which, for this reason perhaps, supports less easily than any other the consequences of exposure to the air.

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[1] Dupuytren, Leçons orales, tome vi.

Even if it should not be admitted that this lesion has the gravity which I attribute to it in considering it the starting-point of the putrid absorption which causes the septicæmia, you will admit that this decomposition of fat and blood at the bottom of a bony cavity ought to be mentioned.

Our predecessors paid no attention to it, and the modern writers who have the merit of having attached their names to the description of osteo-myelitis, especially Raynaud,[1] Chassaignac,[2] Th. Vallette,[3] and Jules Roux,[4] omitted to describe the first period of this osteomyelitis.

They spoke especially of the period of suppuration. It is true that they said that before the suppuration there was hyperæmia with exudations, but they did not describe this form, at the same time exudative and putrid, which is not yet gangrene, but is very near it, and is even sometimes gangrene in places. It is the possible but not inevitable consequence of compound fractures, and I consider it as one of the forms of osteo-myelitis. I call it *putrid osteo-myelitis* preceding suppuration, or primitive. Taking into account the propagation of the medullitis along the medullary canal, I might even call it *putrid and diffuse osteo-myelitis.*

I looked to see if the neighbouring veins were affected. I could find nothing in the nutritive vein at its point of emergence from the nutritive foramen. But the posterior tibial and the popliteal veins were obliterated by clots, without admixture of serosity or of pus, and without the fluidity and the bad odour of coagulated blood. I did not find the internal membrane of the vein thickened, and I cannot say that this vein was actually inflamed; I might then use the term spontaneous coagulation or thrombosis, accompanying putrid osteomyelitis. I shall often have occasion to point out to you the frequency of the coincidence of these venous lesions with osteo-myelitis, and to discuss the nature of the first. To-day, I content myself with telling you that if it is allowable to doubt, in this and in similar cases, the reality of the inflammation of the surface of the vein, there are, on the other hand, reasons to admit this inflammation; and, as the blood contained in the veins thus affected presents capital differences, according to whether it has retained or lost its chemical qualities by decomposition, according also to whether it alone fills the vein or is mixed with pus, which can be attributed to nothing else than a phlebitis, I continue to admit phlebitis in cases of this kind. I only say that here the phlebitis is coagulating and not putrid.

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[1] Raynaud; De l'Inflammation du Tissu médullaire des Os longs (Archives Générales de Médecine, 1831, tome xxvi. p. 161).

[2] Chassaignac; Mémoire sur l'Ostéo-myélite (Gazette Médicale, 1854).

[3] Th. Vallette; Gazette des Hôpitaux, 1855, p. 594.

[4] J. Roux: De l'Ostéo-myélite et des Amputations secondaires à la suite des coups de feu. (Mém. de l'Acad. de Médecine, 1860, tome xxiv. p. 539, avec plate.)

II. Examine now this upper half of a right femur.

It comes from a patient 32 years old, whose thigh I amputated eighteen days ago, for a white swelling of the knee. He was carried off by a purulent infection, of which the first chill occurred on the tenth day, and which had been preceded by an intense traumatic fever.

You know that we found metastatic abscesses in both lungs, but to-day I wish you to study especially the lesions of this femur.

You notice, first, that the periosteum has entirely disappeared for a distance of about an inch. What has become of it? Has it been destroyed by gangrene? Has it been absorbed? It is very difficult to give a satisfactory answer to these questions, because we do not see the succession of the phenomena upon the living patient. We perform an operation; we leave the bone covered by the soft parts; and we carefully avoid raising the latter every day to see what is taking place upon the former. And, when we have the opportunity to examine it, either during life or after death, we no longer find the periosteal covering, and we cannot know how it disappeared; but remember that Reynaud[1] has pointed out the remarkable peculiarity that, in such cases, the marrow inflames and suppurates to a height which is about the same as that of the destruction of the periosteum.

We have broken the femur and found the marrow altered a little higher than the periosteum. The alteration consists, as you see, in a diminution of volume, which has left a gap and, consequently, a place for the air; a grayish putrilaginous softening; and an absolute impossibility to discover the normal anatomical characteristics of the medullary substance; here and there very fluid pus; but above all, a fetid odour, as well of the putrilaginous as of the liquid part. I look to see if the Haversian canaliculi also include this broken-down matter and fetid pus; it is not very certain, but that is undoubtedly due to the smallness of the parts; for, by using a glass, I can see in the small open cavity of the canaliculi, a grayish liquid which looks like serous pus; and I do not find the reddish colour which indicates the presence of bloodvessels. Most of these vessels seem to have disappeared, and, as the different sections of the compact tissue are less red than those of the other femur, I conclude that this one, although still living, had nevertheless lost a part of its means of nutrition, and, calling to mind those patients who, after suppuration of the bone, have had consecutive necrosis, I find here the first period of a necrosis which would inevitably have taken place if the fatal pyæmia had not intervened.

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[1] Reynaud; loc. cit.

The chief point in this specimen is the profound alteration of the marrow, its transformation into dirty broken-down matter, and its fetid suppuration; lesions which are doubtless due, in part, to the nature of the inflammation, and mainly to the decomposing influence upon this inflamed marrow of the outer air within the gaping cavity of the medullary canal; and, as the walls of the Haversian canaliculi are also rigid and gaping, I find in it another reason for believing that putrid suppuration in them coincides with that which takes place in the central canal.

However that may be, I see there the second degree of the disease of which I showed you the first degree upon the preceding specimen. It is still a putrid osteo-myelitis, but the putridity no longer affects the infiltrated and effused blood; it is that of the pus and of the remains of the profoundly altered marrow. It is, in a word, consecutive putrid osteo-myelitis, or, if you prefer, putrid suppurative osteo-myelitis.

Remember this fact and its coincidence with purulent infection, for, when I shall discuss the pathogeny of the latter in your presence, I shall refer to it in support of the opinion which I shall then express.

A final remark: the crural vein, which I here show you, is filled with softened clots, and here and there contains fetid pus. Its internal membrane is slightly thickened and friable; its cellular coat is also thickened. These are certainly the anatomical characteristics of phlebitis, and since the matter contained in the vessel has undergone putrid decomposition, like that of the marrow, I conclude that this is a putrid phlebitis. I look in vain for direct vascular communication between the marrow and the crural vein. On the one hand, the amputation having been made above the nutritive foramen, I cannot find the nutritive vein, the only one large enough to be easily dissected out. On the other hand, the other veins, which might perhaps have established the communication, are too small to be perceived, and many of them have doubtless disappeared in consequence of the beginning of the mortification of which the marrow and the compact substance itself were the seat.

You see that I am again, as I was a moment ago, struck with the coincidence of the osteo-myelitis and the phlebitis; I am preoccupied with the possibility of a pathogenic relation between them; I should like to know if the suppurative phlebitis is developed independently, or if it owes its origin to the passage into the veins of putrid matter coming from the marrow through the veinules leading from the bones. But I have no proof, and can only insist upon the coincidence of the putrid phlebitis with the putrid osteo-myelitis.

I do not claim that these two things always coexist. I showed you, a moment ago, a primitive putrid osteo-myelitis with a non-putrid phlebitis. I shall show you, in other cases, putrid suppurative osteo-myelitis without any apparent phlebitis. The coincidence is nevertheless very frequent, and ought to be considered when the mode of development of purulent infection is discussed.

III. The third piece is the skullcap of a patient in whom we recognized the existence of a fracture of the parietal bone, together with a contused wound of the right side of the head.

Suppurative inflammation had invaded both the external wound and the bone, the parietal bone became denuded by one of those rapid disappearances of the periosteum which occur in acute suppurating osteitis, and the mechanism of which is not yet well known. On the 13th day chills commenced, then followed the cortege of the symptoms of purulent infection, and the patient died on the twenty-second day after the accident.

You know how frequent this kind of death is after compound fractures of the top of the skull. You will read of cases of abscess of the liver occurring after wounds of this kind, and the insufficient theories offered in explanation by J. L. Petit, Bertrandi, Quesnay.[1] Your books will show you that afterwards, according to the valuable works of Dance[2] upon suppurative phlebitis, and those of Breschet[3] upon the large venous canals of the diploë, the opinion was produced that the abscesses of the liver are the consequence of a consecutive infection or mixture of the blood with pus formed in the large bony veins of which I have just spoken. The latter become inflamed and suppurate, as do those of the soft parts, and allow a part of the pus, which is formed by the phlebitis in their interior, to enter into the circulation.

In this specimen you recognize the exactitude of the fact. One of the fragments into which I broke the bone with a hammer shows us an open vein of the diploë. This vein contains serous pus. Undoubtedly here was a suppurative phlebitis. Moreover we followed a veinule leading from the inner surface of the skull to the superior longitudinal sinus. This veinule and the sinus itself inclosed clots without apparent pus, so that we have a suppurative phlebitis of the diploë with a non-suppurative and simply adhesive phlebitis of the veins external to the bone. But I beg you to again notice here, two anatomo-physiological characteristics which escaped the attention of our predecessors. First, this pus which is in the vein of the diploë is serous, of a bad aspect and fetid odour. Secondly, it is not the vein alone which is suppurating; it is the entire diploë of the parietal bone. It is true that you do not see the pus flow; it is not abundant enough for that. But look more closely at this diploë, and compare it with that of the other parietal which I have also broken. The colour is not the same; it is a dirty-gray in the first, and pink in the second. Nor are the contents of the cells the same; yellowish in many points, and blackish in others in the first, where it is composed of pus mixed here and there with blood; it is more purely red in the second, where it is composed of blood and fat. Nor is the odour the same. That of the first comes much nearer putrefaction than does that of the second. In short, here too is suppuration not only of the bony vein but of the whole diploë, and as the contents of the diploë are really analogous, in the normal state, to those of the medullary canal and of all the cavities of the long bones, I consider this also an acute suppurative osteo-myelitis; and on the other hand, as the pus is of bad quality and putrid, and as a fatal infection followed the diploic suppuration, I consider that this suppurative osteo-myelitis is putrid, and, for reasons which I shall hereafter give you, I place in this serious lesion the origin of the purulent infection which carried off the patient.

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[1] Mémoires et prix de l'Académie de Chirurgie, Paris, 1747–1797.

[2] Dance, Sur la Phlébite externe et la Phlébite en général. (Archives de Médecine, tome xviii. p. 286.)

[3] Breschet, Recherches Anatomiques, Physiologiques et Pathologiques, sur le Système Veineux, Paris, 1827–29, in folio.

LECTURE XXVIII.

NECROSIS OF THE LONG BONES.

Its origin is most often traumatic in adults, spontaneous in children and adolescents—Obscurity of former descriptions—Too ready belief in a period of repair—Necrosis is a result of suppurative condensing osteitis, like the hyperostosis which accompanies it—Account of a necrosis of the humerus with invaginated sequestrum—Operation—Persistence of a long cavity in the humerus.

GENTLEMEN: I have often had occasion to show you patients upon whose limbs were fistulæ with longer or shorter suppurating tracts, which ended at denuded portions of the long bones, some of which portions were still immovable, others movable and about to be expelled. You have not forgotten, especially, the femurs, tibias, and humeruses which had been broken by balls, and which, after having been attacked by general suppurative osteitis, lost at different times mortified fragments, which we called *splinters* when they were small, *sequestra* when they were rather large. Nor have you forgotten those adolescents in whom I showed you the elimination of similar splinters and sequestra after spontaneous epiphysary osteitis. Finally, you know that we gave the name *necrosis* to the condition of mortified parts of the skeleton which are destined to be expelled. But you understood and have remembered that necrosis is an incident superadded to suppurating osteitis, when the latter is not putrid and fatal, and especially to general suppurating osteitis, that which occupies at the same time the periosteum, the parenchyma, and the deep parts of the bone, that is, the medullary canal, and the whole thickness of the cancellous tissue, when it is the extremity that is affected. Our authors, in describing necrosis, made a mistake in isolating this deep suppurative osteitis, or osteo-myelitis, and making of it a special pathological entity. That is true and proper for the very thin flat bones, such as those of the palatal arch, and the turbinated bones. For them the phenomena of the suppurating osteitis are so slight, and the consequences of the loss of substance of the bone, which, moreover, are generally inseparable, are so predominant, that I understand the importance given to the phenomena mortification and elimination by a description which is confined almost exclusively to the necrosis.

But you may have noticed in the shaft of the long bones, in the cases of which I have just reminded you, that a great anatomo-physiological and clinical phenomenon, non-putrid suppurating osteitis, precedes the necrosis, and that another phenomenon, hyperostosis, accompanies and follows it. The necrosis consequently is a consecutive lesion, and, as it were, superadded to two others, suppuration and hypertrophy; and it belongs to a variety of osteitis which, to be well characterized, ought to be called *condensing and necrotic suppurating osteitis.* This connection of course is not sufficient for us to give up absolutely the description of necrosis. On the contrary, I consider this description necessary for those cases in which the disease has reached a period at which, the suppuration and hypertrophy no longer having any gravity or clinical interest, the mortification and elimination constitute the morbid condition, and alone call for the attention and intervention of the surgeon. But this too ready belief in the entity *necrosis* is based upon a physiological error which has greatly obscured the descriptions, and which it is time to correct. This error consisted in subordinating all the phenomena of the disease to a reparatory effort preceded by a destructive one. Read the works of Troja, Weidmann, Boyer, and all the contemporaneous French treatises upon this subject, you will see that their main object is to show how the bone is renewed, and to present its excess of volume as the result of a reparatory process supposed to be produced sometimes by the periosteum, sometimes by the marrow.

This opinion was based upon experiments made by Troja and Weidmann, experiments which consisted in destroying the periosteum, the marrow, or the nutritive artery of an animal's tibia, and noticing the anatomical phenomena which followed these lesions. These authors found that, after a certain length of time, the central part of the bone, which had been deprived of its nutritive materials, became mortified and surrounded by a bone which they supposed to be new, and to have been furnished by the uninjured periosteum. But to protect this interpretation from criticism, the destruction of the marrow should have been followed by the mortification of the whole thickness of the bone in those animals in which they found central necrosis. Now, this has not been observed, and it is very possible that a part of the thickness nourished by the periosteal and muscular vessels may have escaped the destruction, and that the new bone may have been furnished by this portion of preserved bone, and not by the periosteum. On the other hand, in the experiments in which they destroyed the periosteum, the mortification did not necessarily extend to the marrow, and they were not authorized to say that in such cases it was this organ that had produced the new bone; for, as in the other case, it might have come from the part of the bone which remained alive.

I have never understood why they have so readily and so generally admitted the reproduction of the bones, either by a pretended medullary membrane, the non-existence of which I long ago demonstrated, or by the periosteum, and why they have had so much difficulty to admit that the bone itself, by its compact as well as by its cancellous tissue, should be able to grow, to vegetate, to produce, in a word, new ossification. In my opinion, it is sufficient to observe the clinical course of osteites, and a few specimens of pathological anatomy, in order to be convinced of two things: 1st. That bones can complete and repair themselves after spontaneous lesions, as I told you took place after fractures, by an augmentation of the nutritive movement in their frame itself, as well as by the hyperactivity of their envelope; 2d. That, moreover, in osteitis in man things take place differently than in experiments upon animals, and that observation of the facts, far from showing a period of repair consecutive to a period of elimination, tended rather to show that destruction was a salutary effort to rid of superfluous matter the bone, which had become too voluminous as a result of the hypertrophy and the osteitis which produced it.

To convince you of the correctness of these ideas, let me remind you of two pieces which I had occasion to show you last year, and which had been taken from two patients who had had for a long time before their death, the one a spontaneous osteitis of the femur, the other an osteitis consecutive to a fracture and the formation of a callus. I insisted upon the capital fact that, in one as in the other, there had been no bony suppuration. The osteitis had remained plastic, to use an expression which I have often employed; the periosteum and the medullary organ had been neither thinned nor hypertrophied. But I showed you in the sawn bone a compact tissue twice as thick as in the normal condition, and much more dense, and a cancellous tissue with smaller cells and stouter trabeculæ than usual. An excess of bony substance had evidently formed, and had increased the volume and the weight of the bone, and the object of this excess had not been to repair a loss of substance, for none had taken place. It was a simple product of the disease, that is, of the osteitis, and I showed you how just and useful was the expression of condensing osteitis invented by Gerdy. But in the cases of which I speak, the condensing osteitis had taken place without suppuration, it had been the plastic condensing osteitis.

Let us now return to the traumatic suppurating osteitis of adults, to the acute spontaneous suppurating osteitis of adolescents. What has the clinical and anatomo-pathological study of them shown us? The clinical study has shown us four things in the succession of observable phenomena.

1st. The destruction of the periosteum to a certain extent.

2d. Suppuration invading the surface, the whole thickness, and the medullary canal of the bone, taking, in short, the extension which it has in the acute suppurating esteo-myelitis of adolescents, and accompanied, furthermore, by similar febrile phenomena.

3d. The increase of volume, quite similar to that which we found in the simple plastic and condensing osteitis.

4th. Afterwards, and long after this hypertrophy, an elimination of the necrosed portions, a single elimination in some patients, and a repeated one in others, with numerous variations in the volume of the sequestra and the interval of the eliminations, while the disease is prolonged for several months, and often for several years.

The anatomo-pathological study of the few pieces which I have had occasion to show you has shown us:—

1st. A first period, characterized by an injection of the periosteum at the points where it had not been destroyed, by a concomitant hyperæmia of the medullary organ, and finally by the dilatation of the Haversian canaliculi of the compact tissue which may be considered as a hyperæmia or injection of the compact tissue.

2d. A second period, in which the vascularized bone suppurates and increases notably in volume. Suppuration is found in the medullary canal and in all the canaliculi of the compact substance, canaliculi which are the principal theatre of the appreciable anatomical phenomena of inflammation of the bone. But at the same time certain points of the compact tissue, previously hypertrophied, lose the vascularization of which I spoke, and take a more or less eburnated aspect which is explained by a diminution of vitality following the augmentation which was indicated by the enlargement of the vascular canaliculi.

3d. A third period, in which the mortified portions are separated from the rest of the bone by a groove, at the bottom of which lies the pus whose formation coincides with the destruction of the bony tissue which is intermediate between that which is necrosed and that which remains alive. This period is more or less prolonged according as the sequestra are or are not invaginated, that is, surrounded by living bone, and according as the portions destined to die are more or less numerous, and succeed one another more or less rapidly.

4th. Finally, a fourth period, which always appears late, and which is characterized by the cicatrization of the fistulous openings, their adherence to the bone, and the preservation by the latter of a greater volume than normal.

What is to be remarked in this evolution is the formation, from the beginning and before the mortification is realized, of a hyperostosis exactly similar to that which takes place in the cases of non-suppurating osteitis, and in which the parenchyma of the compact tissue shares as well as the periosteum and the marrow. Now I cannot see in the increase of size a reparatory process destined to replace the mortified portions, since it commences before the necrosis, properly so-called. Between plastic condensing osteitis of the long bones and suppurating condensing osteitis, I find this difference, that the former takes place without necrosis, and that the second is easily accompanied by necrosis.

Why and how is this difference? The explanation is easy. I suppose that in suppurating osteitis of the compact tissue the inflammation is severe, and is followed by the obliteration of a certain number of vascular canaliculi by the deposit of too abundant bony layers, that this obliteration may produce mortification at the points where it takes place, and that the latter occurs particularly at the points where the periosteum has been destroyed by the excess of the inflammatory process, the bone being deprived at these points of a part of its means of nutrition, while at the same time those which remain are compressed and afterwards obliterated by the diminution of the calibre of their protecting canals. I do not know if my supposition is correct, but in any case, no one can give in the present state of the science an irreproachable explanation of necrosis in acute suppurating osteitis. The important thing, clinically speaking, is to recognize the phenomena, and not to allow ourselves to be turned from observation of them by the acceptation of theories which themselves are only presumptions, but which, instead of being accepted as such, pass, by being often repeated, for demonstrated truths.

In order not to obscure your ideas upon this subject I must add three more considerations:—

The first is, that, if suppurating osteitis of the long bones is often accompanied by necrosis, yet it is not inevitable, and you will sometimes see the first without the other.

The second is that the necrosis, that is, the mortified part, may be external or invaginated. The external one is unquestionably the most frequent, doubtless because, as I explained it, the previous destruction of the periosteum by an inflammatory or a gangrenous process contributes to the mortification. The invaginated form is found when, the periosteum not having been destroyed, chance or circumstances with which we are not acquainted cause the mortification to take place in the centre of the compact tissue or very near to the medullary canal. It is the custom to say in such cases that the old bone, or a part of the old bone, is inclosed in new bone. That is true in some exceptional cases, in those, for example, in which after an amputation the purulent osteo-myelitis has been followed by the mortification of the whole thickness of the bone to a certain height, and in which the remaining periosteum has furnished, under the influence of its excessive vitality, a new bony substance which forms in fact a real new bone. In most of the other cases the invaginated sequestrum is surrounded, not by a new bone, but by the part of the old bone which has not mortified, which is hypertrophied, and of which the hypertrophy, moreover, is not produced by the periosteum, since the latter is habitually destroyed over a certain extent. Nor is it produced by the marrow, for that too is sometimes destroyed, sometimes invaded itself by ossification, and because also it is too far from the sequestrum for us to admit the formation by it of such a thickness of bone as is sometimes seen.

In short, it is the same with the hypertrophy of necrotic suppurating osteitis as with that which accompanies the non-suppurating osteitis of adolescents. Strictly speaking it is not the result of a special reparatory process. It is due to the nature of the inflammation in the compact tissue. This nature doubtless intervenes when there is repair, as in the case of fracture. But its intervention is no more a benefit than is an erysipelas or a phlegmon in the cicatrization of a wound. I consider this augmentation of volume a superfluity, a complication, and I consider it even as being one of the causes of necrosis in long bones.

My third remark relates to the anterior condition of the constitution of those who have, with or without suppuration, hyperostoses consecutive to osteitis. In most of them the health was originally good. You will often hear it said that suppuration of the bones is due to scrofula; that is true of the suppurating osteites of the cancellous tissue of the short bones, or of the extremity of the long bones, and I will show you, at the proper time and place, that this suppurating osteitis of scrofulous persons is at the same time rarefying, and that if it becomes condensing, it is so only in places, and not over a great extent, as is the case in condensing osteitis of the compact tissue. We might give as an axiom this proposition, that condensation and hypertrophy, during and after osteitis, indicate a good constitution, or at least the absence of the scrofulous diathesis. I do not mean by this that patients do not die of an acute suppurating osteitis, for, on the contrary, I have shown you that this affection sometimes causes death by traumatic fever or by purulent infection; I mean only to say that they do not die of exhaustion and of phthisis, as is so often the case with patients affected with caries, that is, with rarefying suppurating osteitis of the cancellous tissue. Should we go so far as to say that patients affected with necrosis of the compact tissue never become tuberculous or phthisical? Of course not; I admit that they may become so; but it is occasionally, after the deterioration of their health by an abundant and prolonged suppuration, much more than by an original disposition. In a word, if necrosis can give rise to the lesions of the scrofulous diathesis, it is not, generally at least, the scrofulous diathesis which gives rise to necrosis.

The object of these general considerations, gentlemen, was to prepare you to grasp the details concerning a patient affected with necrosis of the humerus, in whom the suppurating osteitis, terminating in mortification, is not of traumatic origin like that of which you have seen so many examples after gunshot wounds. It is of spontaneous origin, and although it began at the age of eighteen years, and although in this respect we have in it another of the so frequent examples of spontaneous suppurating osteitis of adolescence, yet the disease has differed from what it ordinarily is, under these circumstances, by a much less acute, slower, and milder course.

The patient, who is now 32 years old, says his disease began at the age of 18. At that time, however, as I just told you, he did not have the acute or hyperacute form which we see so often in adolescents, and which we see more frequently upon the bones of the lower limb than upon those of the upper one. He knows of no particular cause to which this origin can be referred. He only knows that an abscess formed slowly on the outer side of the right arm, and that this abscess, after having opened spontaneously, remained fistulous. He came to me in 1859, three years after it began, when he was twenty-one years old, and I treated him at the Hôpital Cochin, where I had charge of the surgical service. I felt with a probe a denuded and movable portion of bone at the bottom of the fistulous tract; I made an incision, withdrew the sequestrum, which was superficial and not invaginated, and, with the hope of modifying the vitality of the bone, I cauterized it with the hot iron. Notwithstanding that, the patient left the hospital with the fistulous openings, which he has retained for ten years, and you see them to-day (22 Feb. 1870), five in number, upon the superior external portion of the right arm, for the bony lesion occupies the upper fourth of the shaft of the humerus, without at the same time interesting the head of the bone.

Notwithstanding these fistulæ through which the pus continually flows, the patient is hearty and muscular, and for the last ten years has done, almost without interruption, the heavy work of a mason. But, annoyed by this continued suppuration, he has again come to ask my care.

A probe passed into these fistulæ finds a portion of bone denuded over a certain extent, and giving on percussion the dry sound and the sensation of hardness which necrosis presents. The sensations perceived are very distinct; it is a necrosis, there is no doubt remaining upon that point; but I should like to be enlightened upon two others: If the necrosed portion is movable, and if it is or is not invaginated. You understand the important bearing of these questions upon the method of operation. For, if the sequestrum is invaginated, it will be necessary, in order to remove it, to open all that portion of the still living bone which surrounds it. I made in your presence the examination needed to clear up this point. You saw that it gave me certain results only at the end. I felt at the beginning indistinct mobility of the denuded and sonorous portion, but I did not know if I ought to regard that mobility as real, or attribute the sensation to the bending of the probe. To remove this chance of error I abandoned the probes, and made use of grooved directors. I introduced two of them by different orifices, and leaving one of them loose in the fistula, I tried with the other, which I held in my right hand, to move the bone in which I suspected mobility. I at once saw the loose director move freely, and these movements could have been given to it only by the portion of bone upon which the other director was pressed, and proved clearly that this portion was movable.

The mobility of the sequestrum being recognized, it remained, as I told you, to know whether it was invaginated or external; I inclined towards the latter opinion, but in view of the possible existence of invagination I prepared the instruments necessary to hollow out the bone.

The patient was anæsthetized with ether; I made an incision over the deltoid; uncovered the sequestrum, the mobility of which became still more evident when my finger touched it; then seizing it with strong forceps I drew it out. It was about an inch long, and three-quarters of an inch wide. Then introducing my finger into the wound to see if there were other sequestra, I felt none at first, and found only a large gutter in the humerus. It had been occupied by the sequestrum I had just removed, and its very smooth walls were covered by a pyogenic membrane. But at the lower part I felt a movable piece of bone, which projected through an opening at the bottom of this gutter, and seemed to occupy the interior of the humerus. I seized it with a pair of dressing forceps, and drew out a sequestrum much longer and larger than the first. It was invaginated, and occupied in the thickness of the bone a canal which opened at the top into the gutter of which I have just spoken. The opening had been large enough to allow the fragment to pass. I again explored the different hollows of the wound, and withdrew two more splinters; I could feel no others, but, notwithstanding the care with which I sought for them, I cannot affirm that none remain.

Will this operation suffice to bring about a radical cure? I do not dare to hope so, for these affections are extremely long, and pass many times through the same phases before getting well. As I told you, there are splinters which may escape notice, and, on the other hand, new portions of bone may subsequently mortify and cause fresh inflammation. In children, these osteites with suppuration and necrosis disappear generally at the end of three or four years, leaving only the hyperostosis behind them. In adolescents, they last habitually until adult life, that is, until the age of twenty-five or twenty-six years. In this respect our patient is exceptional, for he has retained his bony suppuration and necrosis until he has reached the thirty-second year of his age; perhaps that is due to the fact that the disease was not very acute at the beginning.

Before going further, let me show you what there is peculiar and difficult in the etiology and pathogeny of this necrosis, and also in the anatomical form which it presents.

As to the etiology, I shall say nothing more about the absence of a known occasional cause. I tell you only that, although resembling traumatic necrosis, such as we see after gunshot wounds and compound fractures, it is spontaneous, and commenced at the period of adolescence, but without presenting the acute or hyper-acute form which we sometimes see at that period of life. I will remind you also that this patient has neither commemorative nor present signs of scrofula, that nothing in him indicates tuberculosis, and that if there has been intervention of an internal cause, as I am willing to admit, it remains unknown to us, and belongs to none of those which characterize the generally accepted diatheses.

As to the pathogeny, the mortification which occupies the compact tissue of the upper part of the shaft of the humerus coincides, as you may have discovered by comparing the size of the two arms, with a notable augmentation of the volume of the humerus, so that you have here another example of that triple lesson of which I spoke a moment ago: suppuration of the bone, its necrosis, and its hypertrophy.

As for the anatomical form we had, at first, an external sequestrum, the one which I first withdrew, then an invaginated sequestrum, the second one withdrawn. It happened that the opening in the living portion of the bone was large enough to allow me to reach and withdraw the invaginated piece through it.

Remember that it is not always thus, and that when the opening is too small, we are obliged to enlarge it with a gouge and mallet. I shall tell you in a moment that, so far as the consequences are concerned, it is better not to have thus attacked the surrounding bone. But is this surrounding bone of new formation, or is it formed of the original bone which has remained alive and has become hypertrophied in its superficial layers? Certainly, I cannot give you in this case a rigorous demonstration; but, if you remember the considerations which I presented at the beginning, you will admit hypertrophy of the original bone as at least possible and even probable, and you will not admit as proven (for nothing proves it) that it is a new bone formed by the periosteum. Finally, you will see in the bony hypertrophy a result of the suppurating osteitis and not a salutary effort, just as mortification at certain points of the same bone has been another result which is neither more nor less salutary than the former.

Let us now examine the prognosis. Well, I admit that I do not fear the consequences of the operation. You will perhaps think that I am too bold in saying that, for this morning the suppuration was fetid, and you know that fetid suppuration of bone may lead to dangerous septicæmia. But what reassures me is, that I have made no fresh solution of continuity in the humerus with the gouge and mallet. Experience has taught me that dangerous traumatic fever and purulent infection are consecutive especially to osteo-myelitis caused by a recent solution of continuity, and the putrid form of osteo-myelitis does not occur when, as in the present case, the bone has been spared.

I do not, however, shut my eyes to the fact that this preservation of the integrity of the humerus has its disadvantage, the existence in the interior of the bone of a canal closed below and open at the top. It will be difficult to prevent the pus from collecting in this canal, and it may become necessary to make a counter-opening with a drill so as to prevent stagnation of the liquids, and thus cause that bleeding solution of continuity which predisposes to pyæmia.

But, on the other hand, it is possible that the bony canal may become filled by the continuation of the hypertrophic process, and that the formation of pus may cease without having caused any accidents. However that may be, there is, in the persistence of this canal, which is about an inch long, a disadvantageous condition which may keep up suppuration and hecticity, and prolong the affection. This condition does not exist when the sequestra have been superficial, and in this respect the prognosis has a greater gravity in this patient than if the necrosis had not been invaginated.

(The patient affected with necrosis of the humerus had no fever and presented no complication. The wound made by the operation suppurated, the bone itself continued to suppurate, the pus flowed with difficulty from the canal in which the sequestrum had been lodged. We made injections of a weak solution of carbolic acid every morning and evening, by passing a gum catheter attached to the canula of the syringe into the bony canal. The patient wished to return home, and we showed him how to make the injections.

I am still unwilling to propose a counter-opening, because this operation might have unfortunate results, and because I hope the canal will dry up or fill by the addition of new bony layers. If this does not take place, if the suppuration continues, if it becomes more fetid, if the patient is unable to work, he will return to us, and then, recognizing the inability of nature to complete the cure, I shall make a large opening at the bottom of the accidental canal so as to prevent the stagnation of the pus.)

PART IV.

TRAUMATIC FEVER, PYÆMIA, AND SEPTICÆMIA.

LECTURE XXIX.

TRAUMATIC FEVER.

Gunshot wound of the right elbow—Resection followed promptly by death from traumatic fever—Considerations upon grave traumatic fever following compound fractures.

GENTLEMEN: We lost yesterday a patient who was struck at the battle of Montretout by a ball which passed through his right elbow, causing a comminuted fracture of the three bones forming the articulation. He was brought to the hospital the next day, and on the following morning, thirty-six hours after the accident and while the fever of the first period was still moderate, I resected the elbow. You remember that the bones were so shattered that I found it very difficult to remove all the fragments, since most of them were still adherent and had to be separated one by one from the muscular and aponeurotic fibres. I made a T-shaped incision, the vertical portion of which was on the outer side of the arm and forearm, and the horizontal portion posterior, passing above the olecranon. This incision is similar to that adopted by Roux,[1] but differs from it in this: that in the latter the vertical incision is on the inner side, while in the one which I used and which belongs to M. Nélaton, it is on the outer side. This enables the operator to reach the radius immediately and resect it, and then, having thereby opened the articulation freely, to isolate and remove, while avoiding the ulnar nerve, first the upper extremity of the ulna and then the lower extremity of the humerus. In this case the operation was not as regular as it would be under many other circumstances, for after having made the external incisions, I came upon a mass of splinters which I removed without knowing to which bone each belonged, and then I sawed off the end of each bone so as to substitute a regular and uniform surface for the irregular and jagged one due to the injury. You remember that I then brought the edges of the solution of continuity together with four points of metallic suture, rather with the view of giving them a good position and immobilizing them than in the hope of obtaining immediate union. Indeed the latter is very difficult to obtain, and

[1] Thore, Résection du Coude, Inaugural Thesis, 1843.

experience has taught us that immediate union after large operations almost always fails, and fails in the same way, that is, because if by chance it takes place in the outer or superficial layers it does not in the deeper ones, where the fetid pus accumulates and is retained more easily in consequence of the union of the edges of the wound and the formation of a cavity behind them. Now this retention of fetid pus behind a closed wound favors that absorption of putrid substances which is the starting point of infectious fevers. My intention then was not to seek an immediate union, which from the moment it became impossible would have offered only disadvantages, and the same principle guides me after amputations, as I have had and shall doubtless again have occasion to show you.

After putting in the sutures I placed the limb in a wire splint properly lined with cotton batting and oiled silk. You know that this splint is a recent improvement which we owe to those skilful manufacturers, Messrs. Robert & Colin. It has on the outer side a movable piece attached to the rest by straps and buckles, which can be removed and replaced at will. We removed it morning and evening to dress and clean the wound, which was done without communicating any movements to the limb and without causing any pain. The dressing was completed by means of a double compress soaked in a mixture of alcohol and water and renewed every morning and evening.

You remember what followed. The next day the pulse was 130; the skin hot; the thirst intense. The patient had no appetite; had not slept; complained of headache, and was very anxious about himself. The wound and the adjoining parts were very painful; the lower half of the arm and the entire forearm were considerably swollen. I removed the compress wet with alcohol and substituted poultices; prescribed a potion containing one and a half ounces of the syrup of the acetate of morphia to be taken by spoonfuls, and an opium pill at night.

The following day the conditions were the same. The abdomen became tympanitic. The wound yielded an abundant sero-sanguinolent discharge, and was covered with a grayish diphtheritic pulp.

The third day the fever still persisted; the pulse was 130; temperature in the axilla 104° (Fah.); tongue slightly dry; sub-delirium at times; increase of the local swelling. The sero-sanguinolent discharge had given place during the night to a hemorrhage, *en nappe*, which evidently came from the capillaries. As it was not possible to apply a ligature, the flow had been arrested by means of charpie wet with dilute perchloride of iron and a band which included the splint in its folds.

The fourth day still worse. Fresh hemorrhage during the night; the wound covered with pulp and sloughs; the swelling of the deep diffuse phlegmon in the arm and forearm had become enormous.

The following days the general and local conditions grew worse; the tongue became drier; the abdomen more and more tympanitic; the delirium continuous, and finally death took place at the beginning of the seventh day.

We had in this case, gentlemen, an exaggeration of the phenomena which we often observe in the first period of large wounds which, if the patients survive, suppurate and granulate before cicatrization. You remember that in gunshot wounds involving only the soft parts, I have applied the term *preparatory to suppuration* to this period which most of our authors have called *inflammatory.* It is true that when the bones are not involved the suppuration is always preceded by local phenomena of inflammation: slight swelling, heat, moderate pain; but ordinarily the general symptoms, especially the fever, are absent. On the other hand, when the skeleton, as well as the soft parts, is injured, this period preparatory to suppuration is almost always marked by general and febrile as well as local symptoms, so that it more than ever deserves the name of inflammatory period. I say almost always and not always, because the general symptoms are sometimes lacking, and that occurs in the fortunate cases in which the skeleton itself, the bones, and the synovial cavity, when a joint is involved, do not suppurate. I have had occasion to call your attention to cases of this kind, and as the result of observation of such I offer this formula: intense fever appears in the first period of compound fractures where suppuration is preparing in the bones themselves, and it is lacking when the bones are destined not to suppurate.

Have we now any special names to designate this group of local and general symptoms? If you often hear me ask this question of nomenclature it is because the words are associated with ideas and theoretical explanations with which we ought to be acquainted and from which we have even to choose when these ideas and those explanations lead to therapeutic or prophylactic measures. I have told you before that the term *hospital gangrene* has sometimes been applied to wounds in this condition, and also that I did not approve of it. Let us seek one that is more appropriate.

After Hunter's and Broussais's works on inflammation the denomination of *inflammatory period*, which I have just mentioned, was adopted. By this was meant that the suppuration depended upon a peculiar condition of the wound and of the entire organism called inflammation. When the fever was lacking, or was not very high, they said the inflammation was moderate; when the fever was very marked, it was explained by the intensity of the inflammation.

A little later, about 1840, surgeons began to express some doubts of the sufficiency of this explanation of the symptoms which precede and seem to prepare the way for suppuration. Without giving any reasons, they adopted new terms which seemed to indicate another, but still vague and indefinite, theory.

This is seen in an article published in 1848 by an English surgeon, Fenwick, in which the causes of death after amputation are discussed; deaths occurring during the first ten days instead of being charged to a too intense or malignant inflammation are attributed by this author, some to nervous complications, the others to gangrene of the stump. Fenwick has certainly included under this head of *nervous complication* those cases in which the patients were delirious, and under that of gangrene those in which the wounds presented in a very marked degree the sloughs and pulp which you saw on our patient. Moreover, as Fenwick's statistics were taken from the records of different hospitals, and were of patients whom he himself had not treated, he had to take as the causes of death those assigned by the surgeons in charge, and they wrote the words *nervous complications* or *gangrene* according as their attention was attracted more by the delirium or by the sloughs. That meant that in their opinion death was due to a concomitant cerebral affection, or to gangrene, but they did not explain the intervention of this as a cause of death.

Since that time we have had other American and English statistics which still attributed the deaths of this first period of capital operations to one or the other of these two causes.

Still later, about 1850, and still without giving any positive explanation, the German surgeons, and Billroth in particular, made use of the term *traumatic fever*, and attributed to this fever that which in France we had first attributed to inflammation, and that which Fenwick and the English had afterwards attributed to nervous complications and to gangrene of the stump.

Then came the experiments of Otto Weber, those of Billroth himself,[1] and Panum's. These experiments consisted in the injection under the skin of different animals of sanious and putrid discharges coming from patients whose suppuration was of bad character, and then in watching the subsequent condition of the animal by means of the thermometer. It was found that in almost all cases the temperature rose several degrees, that some of the animals died, and the others recovered after having been sick for several days. The experimenters inferred that the passage of putrid substances into the blood can cause fever, and they explained by this passage the so-called traumatic fever, so that at last this term came to convey the idea of an infectious fever due to the absorption by the lymphatics and bloodvessels of the wound of the putrid materials found upon the surface of the latter.

Before the experiments of the German authors were made, I had worked out the same solution of the problem, and I said in the paper which I read in 1855 before the Société de Chirurgie that the fever which sets in during the early days of a large wound was due to an infection, that is, to the passage into the blood of putrid materials having their origin in the decomposition, by contact with the air, of the sanguinolent, serous, and sero-purulent liquids poured out during the first hours, before the complete establishment of suppuration, and absorbed by the vessels of this wound. I was led to this opinion by two series of experiments. The first were made upon human beings by applying the iodide of potassium to wounds with the view of studying their power of absorption. I found this power was very marked, and as, on the other hand, I often found putrid liquids during the preparatory period, I did not hesitate to infer that these liquids might be absorbed, and, passing into the economy, produce fever.[2]

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[1] Billroth, Arch. Générales de Médecine, 1865, 6 series, tome vi.

[2] Gosselin, Mémories de la Société de Chirurgie, tome v. p. 147.

The others were made upon animals; the skin was incised, and sanguinolent and fetid pus, procured from fresh amputation wounds, was introduced below it and retained by three or four points of suture. I did not take the temperature, but I found that the animals (dogs) became ill and died promptly, while others inoculated in the same way with phlegmonous pus, that is, pus not coming from an acute osteitis, survived, and, indeed, were scarcely affected at all.

I admit then that the German experiments have been of service to this new theory, because they were more numerous, and more widely published than mine. But I may be allowed to repeat what I said in the Académie de Médecine,[1] that, so far as I am concerned, I did not wait for the results of foreign work before expressing my opinion upon this subject.

To-day, adopting the word *septicæmia* for all the febrile conditions which we are authorized to explain by the passage of putrid substance into the blood, we say that traumatic fever is a septicæmia, the traumatic septicæmia of the first few days, as distinguished from the purulent infection which occurs a little later.

Two questions arise here:—

Are all the symptoms observed during the first period of wounds which are destined to suppurate due to septicæmia?

What is the origin of the putrid poison the absorption of which gives rise to traumatic fever or primitive septicæmia?

1. We must distinguish three varieties among the symptoms of this initial period of wounds.

The first, which we find especially in the cases in which the solution of continuity involves only the soft parts, is that in which the symptoms remain local and are not accompanied by fever.

The second is that in which, while the local symptoms remain quite moderate and the surface of the wound especially does not become gangrenous, a certain amount of fever is nevertheless present. This is what I call *mild or benign traumatic fever;* it is seen in some cases of very extensive wounds interesting the soft parts alone, and in some of those in which the bones are involved and are destined to share in the acute suppuration, but without putridity.

The third is that in which, the bones being involved and about to become the seat of acute suppurative osteitis, the surface of the wound becomes gangrenous, a deep-seated, fetid, diffuse phlegmon is developed, and fever sets in and takes on a very serious form. To this I give the name *grave traumatic fever or essentially malignant primitive septicæmia.*

I do not wish to affirm that septicæmia really exists in the first variety; indeed I am inclined to think that it does not, and that the local symptoms should be attributed to a group of local anatomical conditions or modifications which are necessary to the establishment of the pyogenic membrane and the suppuration, a group to which we can give no other name than the one by which it is now known in pathology, that of inflammation. I will say then that in such a case suppuration is preceded by a purely inflammatory period.

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[1] Discussion sur l'Infection purulente. (Bull. de l'Acad. de Médecine, 23d March, 1871, vol. xxxi. p. 182.)

In the second variety where there is fever, but a mild one, I am more ready to admit a certain degree of septicæmia. It is true that local inflammation exists, but it is not sufficient, I think, to account for the fever, and when I see this coexisting with the presence of more or less putrid substances upon an absorbing surface, I am disposed to consider it due to absorption, and consequently to septicæmia.

As for the third variety, I do not hesitate a moment. The intense and dangerous fever coincides with extreme putridity of the wound; the symptoms observed accord with those furnished by experiments upon animals. The absorption seems no more doubtful to me than the septicæmia which is the consequence of it. It would remain to determine whether the gangrene of the soft parts, which would then have to be attributed to a bad character of the inflammation, precedes the septicæmia and is the cause of its gravity, or whether it is the intensity of the septicæmia which reacts upon the wound and leads to gangrene.

We here touch upon questions which can be answered only by hypotheses supported neither by experiments nor by analogy. For that reason I shall offer you no definitive solution, wishing simply to leave you with this impression that grave traumatic fever owes its gravity to the extreme malignity of the putrid poisons formed upon the surface of a wound in a certain number of cases where these wounds are complicated by the imminent appearance of acute suppurative osteitis.

2. I asked a second question: What is the origin of the supposed poison which gives rise to the septicæmia of traumatic fever?

The authors who first spoke of putrid absorption, and who prepared the doctrine of septicæmia, confined themselves on this point to generalities, saying that the poison was formed by the decomposition in the presence of air of the serosity and blood exuded from the surface of the wound during the first few days, and they spoke of the poison as if it might be formed, and with the same facility, on the surface of every wound.

Now, if my idea has been properly expressed, you must have understood that, if I admit the existence of inflammation during the first period of all wounds, I am far from admitting septicæmia in all, and that, if I admit it for some, I make a distinction between benign septicæmia or mild traumatic fever, which is never fatal, and grave septicæmia, which often causes death. You must also have understood that grave septicæmia is rarely seen in cases where the skeleton is not involved. We see it especially when there is fracture of a large bone at the bottom of a wound caused by a gunshot or by some bruising body, and when this bone is about to take on acute suppurative inflammation of all its constituent parts (periosteum, bony substance, medullary tissue, or marrow), or when a large articulation is widely opened and becomes the seat of acute suppurative synovitis. So that in my opinion the problem is restricted to this: What is then the origin of the supposed poison in the cases of osteitis and traumatic synovitis, which, together with the coexisting wound, are to pass through acute suppuration?

A. As for the cases of osteitis, I have often explained to you the opinion which I first expressed in 1855,[1] that the medullary fat is probably the origin of the poison. When a bone takes on acute osteitis, the marrow shares in the inflammation, to which I am always obliged to concede a certain part in the evolution of the symptoms preceding the establishment of suppuration. This marrow becomes hyperæmic, infiltrated with blood which escapes from its congested vessels, and with plastic matter exuded by these same vessels; part of the fat and of the albuminoid substances which form the marrow escapes and mingles with the serosity, the clots, and the exudations. All this decomposes as the result both of the admixture and of an action of the air similar to that which produces putrefaction. I wish I could help you to see and touch this peculiar alteration of the fatty substance of the bone; but I cannot do so, for chemistry has not yet given a final opinion upon the subject. I have, however, read an article by M. Klose of Breslau,[2] in which he speaks of the special alteration of the fat of inflamed bones and of the putrid principles to which it gives rise. I admit that I have no positive demonstration to offer you, but how are we otherwise to account for the frequency, and above all, the gravity of septicæmia in those cases in which the bones suppurate? I know that fat is to be found in the soft parts, and that it would seem as if this fat ought to change in the same way as in the cases where the bones are involved. But the fat of the soft parts has not the same composition, that is, it is not combined with the same albuminoid or gelatinous substance, the presence of which perhaps renders the decomposition of the fat of the bones easier and more deleterious; moreover, I have told you that traumatic fever sometimes occurs also during the first period of wounds of the soft parts. It may be because their fat does not furnish such pernicious substances that this fever is rarer and more generally mild. But it is none the less allowable to explain it also by a certain degree of septicæmia, admitting that the organic poison supplied by the altered fat of the soft parts is a little different, or, if it is the same, that it is formed and absorbed in less quantity.

In 1855 I ventured another supposition, that, the poison being the same in the traumatic fever following lesion of the soft parts as in that following lesion of the bones, its greater gravity in the latter was the result of a more ready and more abundant absorption, due either to the fact that the solution of continuity of the bone increased the extent of the absorbing surface, or that perhaps the marrow itself possessed a very great power of absorption. I published the results of several experiments upon dogs, in which I trepanned the shaft of the femur, and injected through a syringe a preparation of iodine into the medullary canal, results which showed that the marrow possesses the power of absorption, although not to a greater degree than other parts of the organism.

[1] Gosselin, loc. cit.

[2] Klose, Gazette Médicale.

The results of recent experiments communicated by M. Demarquay to the Académie de Médecine in October, 1871,[1] are more favorable than mine were to the opinion that a rapid and easy absorption takes place within the medullary canal. These experiments consisted in the injection of fuchsine by means of an Anel syringe through a hole made between the condyles of a rabbit's femur.

B. As for the cases of synovitis, I shall first make a distinction between those in which the penetrating wound of the articulation is complicated by fracture, as in gunshot wounds, and those in which fracture does not coexist. Intense traumatic fever is rarely absent in the first case; but it can be explained, in part at least, by the acute suppuration of the fragments. It is not so intense nor so grave in the second, but it nevertheless exists, and is more marked than in ordinary wounds of the soft parts.

Whence comes the poison then? Probably from the altered fat of the synovia; but perhaps the extent of the absorbing surface must be considered, especially when a large articulation is involved. I may add that liquids are retained and stagnate easily within the cavity of an articulation, and that consequently when once formed the poison is brought into contact for a longer time, and more freely with the large absorbing surface.

Etiology, Prophylaxis.—We have discussed the pathogeny, the ultimate mechanism, that which is so difficult to grasp in all diseases, and I wish now, returning to the practical standpoint, to speak of the etiology, of the appreciable causes of traumatic fever. And yet I should tell you at once that I have very little to say. You know that the principal cause of this affection is a solution of continuity involving the soft parts and the bones. But all persons who receive wounds of this kind are not sure to have the fever, and among those who are attacked by it, some are but slightly affected, and others so severely that they die speedily. Do we know the reasons of these differences? Very slightly.

I can again tell you that traumatic fever is absent, or is moderate, in the rare cases in which the bones do not take part in the suppuration. We have had several examples of this, and I have discussed it sufficiently on other occasions. But I do not know what are the causes which favour this suppuration, and make it inevitable in most cases. However that may be, acute purulent osteo-myelitis having been set up, the causes which aggravate traumatic septicæmia are probably all those which may have deteriorated the constitution shortly before the wound was received, such as fatigue, privation, bad food, loss of sleep, forced marches, moral emotions, chagrin, all those circumstances, in a word, which affect the soldier, and give a special gravity to gunshot wounds of the large bones. I believe, however, that bad domiciliary conditions in the hospitals, and notably the hygiene of the wards, exert but little influence. After the battles about Paris, I so often saw grave traumatic fever make its appearance in large rooms, or in well-ventilated and not crowded military hospitals, that I cannot admit that bad atmospherical conditions have any influence in producing it, at least not so certainly as they have in purulent infection.

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[1] Demarquay, Recherches sur la Perméabilité des Os dans ses repports sur l'Ostéomyélité et l'Infection purulente. (Bull. de l'Acad. de Médecine, Octobre, 1871, tome xxxvi, p. 877.)

In addition to the nature of the wound, and all the individual conditions which I have enumerated, we can only invoke, to explain the intensity of the traumatic septicæmia, as we do for so many other diseases, an idiosyncrasy, that occult cause of which I have spoken so often, in consequence of which certain persons are more apt to supply, from the liquids of their organism altered by contact with the air, or by the consequences of a violent inflammatory process, the quantity and quality of septic poison necessary to compromise life.

From what has been said I wish to draw the conclusion that, in the present state of our knowledge, we possess no real prophylactic measures to be employed against grave traumatic fever.

The best plan, when a patient has received a compound fracture, is to do everything that may prevent suppuration of the bone. To obtain this result in gunshot fractures, we can do little beyond immobilizing the limb and the fragments, and taking the special precautions which are necessary during the removal of the patient from the field to a more or less distant place.

As for the constitutional conditions of which I have spoken, and which predispose to dangerous suppuration, it is plain that we can do nothing against them, and that no prophylactic measures could oppose their influence.

It is always well, especially in view of purulent infection, which, next to grave traumatic fever, threatens the patient most—it is well, I repeat, that he should be placed in as pure an atmosphere as possible which can be renewed easily and without chilling, and if possible, in a room which contains no other wounded patient. From what I have said, you may have comprehended that this precaution is not so necessary against traumatic fever as against purulent infection, but so long as isolation is a precious prophylactic measure against the latter, it will inevitably be used against the former. I have returned to this subject in order to leave this idea in your minds, that, if we are authorized in our statistics to attribute the mortality caused by purulent infection to bad atmospherical conditions, yet we must not attribute that caused by traumatic fever to the same cause, since it is due rather to individual than to external conditions.

There is, indeed, a prophylactic measure to be found in a mode of dressing which we should always bear in mind when we wish to prevent a suppuration, the consequences of which may be serious. I refer to the occlusive dressing, which I have often had occasion to mention, and which you have seen me use successfully. Its result may be either to suppress all suppuration or only that which is dangerous, suppuration of the bones, by favouring the union of the deep parts and allowing suppuration of the superficial parts alone. But, although this dressing succeeds perfectly when the wound is small and when it has been made by an ordinary instrument, it is of no use when the wound is so large and contused as it is when caused by a gunshot. Consequently you have never seen me use it in cases of this kind, and I have shown you that when patients have occasionally escaped suppuration of the bone after gunshot wounds, this fortunate result could not be attributed to our method of dressing the wound, but was due simply to the idiosyncrasy of the patient, the immobilization of the limb, and abstention from irritating explorations.

Finally, do not be surprised that I do not speak of curative treatment; there is none that has much influence upon this dangerous affection. Derivation towards the alimentary canal by means of laxatives is always indicated, also alcoholic stimulation, and even sulphate of quinine and tannin as antiseptics. You have seen me employ these, but your observations and mine have shown that they were not very efficacious.

LECTURE XXX.

PURULENT INFECTION OR PYÆMIA.

Two cases of purulent infection or pyæmia, one following gunshot fracture of the thigh, the other, gunshot fracture of the leg—Anatomical characters and pathogeny of this disease.

Gentlemen: We have recently lost two of our patients who were suffering from gunshot wounds. One had had the femur, the other the tibia broken by a ball. In each case the fracture was near the middle of the bone and moderately comminuted. They suppurated; the patients, who were both young but much broken by exposure to cold, forced marches, and loss of sleep, had intense traumatic fever from the beginning, and, in one case on the ninth, in the other on the eleventh day, had an initial violent chill which lasted twenty or thirty minutes, and was followed by great acceleration of the pulse. The tongue became dry, the skin clayey, and then subicteric in color. The chill was repeated once or twice each day at irregular intervals, the strength grew less, slight delirium, diarrhœa, and abdominal tympanites set in. Meanwhile, the suppuration diminished, the pus became thinner, and had that fetid odor which you have heard me compare to that of a mouse. Finally, death took place on the twelfth day in one case, on the fifteenth in the other.

The autopsies were made, and I now show you some of the specimens taken from the bodies.

I. The principal lesions were found in the chest, abdomen, some of the joints, and the broken bones.

A. *In the chest*, each pleural cavity contained a notable quantity of serosity, together with soft false membranes lining the parietal pleura and the lungs, especially at the base and the lower lobes.

After having taken out the lungs and removed the false membranes, I examined the upper and middle lobes, without finding anything worth mention in them. Then, taking hold of the lower lobes, in which lesions are most frequently found in cases of this kind, I felt, in the tissue of the lung along the outline of the base and behind, several hard lumps about as large as peas, over some of which the surface of the lung was of a deeper colour than elsewhere, whilst over others the colour was yellowish. On cutting into these different points, we found different appearances. I here show you two of them, in which the surface of section is black, and from which I can scrape or squeeze a thick sticky liquid which is nothing but blood. But this blood does not flow away freely; after the scraping and squeezing there is still enough left to keep the colour dark and to give the pulmonary parenchyma a firmer consistency at these points than elsewhere.

Here are two other spots, in which you find the centre of the section yellow and the outer part of the same deeper colour as before. The yellow centres yield, when pressed and scraped, a small quantity of liquid which to the naked eye seems to be pus, and in which the microscope shows us purulent globules; but this pus does not flow away in sufficient quantity to leave a cavity behind. In addition to this rather scanty infiltrated liquid, there is a yellow substance, probably plastic matter, united very intimately with the parenchyma of the lung.

Lastly, I show you three other spots over which the surface itself of the lung was yellow. On cutting into them you see real pus flow, yellow and creamy like wholesome pus. After its escape there remains a cavity, here as large as a large pea, there as large as a hazel-nut, the inner surface of which is still lined with a rather adherent yellowish exudation. But the red and yellow centres have disappeared, and with them all that remained of the parenchyma.

You see there, gentlemen, the three stages of what are called metastatic abscesses of the lungs; the brown foci belong to the first, those that are gray in the centre and brown at the periphery to the second, and the purulent collections to the third. The anatomical characters during the first two stages differ from those of ordinary phlegmonous abscesses. In the first, for example, instead of a simple hyperæmia with infiltration of serosity, it seems that we have an ecchymosis, that is, a flow of blood from torn capillaries, and at the same time a thickening of this blood and an intimate union of its coagulum with the infiltrated portion of the parenchyma of the lung. Dance[1] and Cruveilhier,[2] however, explained these brown foci in another way. They attributed them to small blood clots formed within the capillaries of the lungs in consequence of the development of a capillary phlebitis.

Virchow[3] and the German authors afterwards adopted this explanation of the formation of the brown foci by clots, but they added that these clots, instead of being formed locally, as Dance and Cruveilhier thought, came from a distance; that they were embolic clots formed in the affected veins near the wound, swept along in the current of the circulation, and stopped in the capillaries of the lungs; and they invented the word infarctus, which bears the signification of an obstruction of the capillaries by fixed, but imported, clots.

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[1] Dance, Article Abces metastatiques, in the Dict. de Méd., in 30 vols. Paris, 1832.

[2] Cruveilhier, Article Phlébite in the Dict. de Médecine et Chirurgie pratiques, in 15 volumes.

[3] Virchow, Pathologie Cellulaire, Paris, 1868, 3d edition.

I wish I could show you which of these two theories, that of ecchymotic infiltration, or that of embolic clot, is the right one; but I cannot do so.

I see the thick blood intimately mingled with the parenchyma of the lungs, but I cannot make out whether it is contained within the capillaries or whether it is outside of them, and seductive as the theory of embolism may be, I do not find evidence sufficient to make me consider it irrefutable, as most authors do.

I can understand as easily the possibility of an ecchymosis analogous to that which we see formed in the lungs after the ingestion of narcotic and narcotico-acrid poisons. I shall tell you in a moment that I consider purulent infection as a septicæmia, as a poisoning; it is possible that the poison acts upon the lungs like those I have just mentioned, that is, that it gives the blood qualities which are irritating and corrosive for certain vascular walls, hence its escape and infiltration.. It is certainly difficult to understand why this corrosive action should be exerted upon the lungs and liver more than upon the other organs, why in the lungs themselves the vessels of the base and those of the superficial layers of this base are more often and more easily torn than those of the upper lobe and of the deep portions of the lung.

This difficulty is, moreover, only the prelude of many others which the study of this singular affection will offer us. You will see at every moment that I shall be at a loss how to explain the various phenomena which characterize it.

Look, for example, at these yellow foci of the second stage. By what are they formed? Probably by an exudation of plastic matter at the centre of the red spot. But whence comes this exudation? Is it, as the name would indicate, a new formation substituted for the blood, which, originally arrested, would then be reabsorbed? Is it not rather a transformation of this blood? I cannot give you a satisfactory solution of this question.

And then these cavities of the third stage, how are they formed? Is it again by a new formation, which would presuppose the absorption of the exudation just as its deposit presupposed the absorption of the blood; or might it perchance be a transformation of the original exudation into pus? These are obscure questions, which I ask and do not answer, although I do not hide from you that I incline rather towards the theory of substitution than towards that of transformation.

B. *In the abdomen*, we found the spleen larger and more friable than usual, and filled with very thick black blood. On the convex surface of the liver we found two yellow spots of about the size of a dime;

on cutting them they proved to be formed of a concrete semi-solid substance, resembling that of the second stage of pulmonary metastatic abscesses, and which seemed to us to be likewise formed of plastic material mingled intimately with the tissue of the liver. Furthermore, on cutting more deeply, we found two cavities within its parenchyma, containing thick, yellow, creamy pus. Were these abscesses preceded by a plastic deposit analogous to that which we found on the surface of the liver? It is very probable; although in cases of pyæmia we find metastatic abscesses of the liver more often in the condition of collection than in that of infiltration. You notice here what is generally the case, that there are no brown spots similar to those which, in the lungs, characterize the first stage of metastatic abscesses. The infiltration of blood, if it precedes, must then disappear very rapidly. But as I have never met with it, even in cases in which death took place very early, I believe that it is ordinarily absent, as is also the case in the muscular interstices and the articulations, and that consequently the embolic clots to which so much importance is attached in Virchow's theory must not be considered as inevitably preceding the formation of pus in abscesses of this kind. So long as we do not find sanguinolent foci in the liver we are not justified in believing in a preliminary morbid condition, with or without rupture, of a certain number of capillaries.

C. We opened the right scapulo-humeral articulation of the first patient, who had complained of pain there, and we found in it a considerable amount of pus. I called upon you to notice: 1st. That this pus also was thick, creamy, and presented, consequently, the characteristics of what we term wholesome or laudable pus; 2d. That the synovial membrane, notwithstanding this abundance of pus, presented neither ecchymoses similar to those which we found in the lungs nor the infiltrations, nor even the redness, nor the thickening which in articular abscesses of different origin indicate the existence of a synovitis ending in suppuration. In like manner, as you saw no traces of hepatitis below and about the abscesses in the liver, so you see here no traces of synovitis.

The same thing is seen in the cases in which we find metastatic abscesses among the muscles. There are collections of pus, but about them we find neither injection nor serous infiltration, nor any of the anatomical characters which belong to a phlegmon preceding an abscess.

In a word, purulent collections without preliminary inflammation; that is the most striking point in these so-called metastatic abscesses of purulent infection; for I cannot consider as belonging to inflammation, properly so-called, the lesions of the first two stages of the pulmonary metastatic abscess. These lesions are unusual, bizarre, if you choose, but they are not those of an ordinary phlegmasia.

D. Here now are the femur and the tibia, which were broken by the balls. Both offer the multiple fragments of comminuted fractures, and these fragments lay in the fetid and blackish pus which communicated with the exterior by the openings of the perforating course followed by the projectile. The periosteum still remains on some of the fragments, but is lacking for about an inch on the two principal ones, the upper and lower pieces.

If you examine the outer surface of the compact tissue of these fragments, you will find there a little reddening, and that enlargement of the Haversian canals which was pointed out by Gerdy[1] as one of the characters of osteitis of the compact tissue. Neither upon this outer face, nor upon the fractured surfaces of the fragments, nor upon what remains of the periosteum, do we find any appearance of the process of consolidation. It is evident that the purulent secretion has taken the place of the secretion and subsequent transformations of the plastic lymph, which, at the stage of injury, if there had been no suppurating wound, would have supplied the cartilaginous callus. If the patient had lived, the granulations of all the surfaces of fracture would have undergone this transformation, as I have previously had occasion to explain it to you (see p. 76 et seq.).

I call your attention particularly to the condition of the medullary tissue of the two bones. In order to understand it properly, I have had recourse to two measures: I have broken the upper and lower fragments of each of the fractured bones with a hammer, and I have taken out and broken in the same way the corresponding bones (femur and tibia) of the other side. I wished to show you the interior of the medullary canals, and to enable you to compare the appearance of the healthy with that of the affected side. What do you see on the healthy side? The medullary canal, and the meshes of the spongy tissue which are continuous with it at the ends of the bone, are filled with rather firm fat, very yellow in one case, pinkish, and at the same time a little more diffluent, in the other. The predominant fact, notwithstanding the differences in appearance and consistency (differences which are very common, and by no means imply an abnormal condition),[2] is the fat. Look now at the fractured bones: at the line of division there is no longer any fatty marrow; in its place is a substance red in some places, gray in others, blackish here and there, rather firm, with a fetid odour, not looking at all like fat, hardly greasing paper when rubbed upon it, and apparently composed of an exudation mingled with what remains of the marrow. Scraping it with a scalpel removes a puriform substance. At a little distance from the line of division, we find here and there collections of pus, instead of the thick substance infiltrated with pus of which I have just spoken, and that continues for about one and a half inches beyond the point of fracture. It is only after reaching the spongy tissue near the extremities that we find normal medullary fat without admixture of pus. There is then in the medullary canal a mixture of plastic deposits, of purulent infiltration and collections, and of gangrene here and there, with diminution and total disappearance in places of the normal fat. This is somewhat similar to diffuse phlegmon with sloughs of the soft parts.

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[1] Gerdy, Maladies des Organes du Mouvement, p. 155, Paris, 1855.

[2] The marrow of the bones is always more vascular and more diffluent in the child and adolescent than in the adult and aged, and, in this respect, there are many individual varieties among adults; sometimes the marrow is more, sometimes less, vascular, and these differences are not due to appreciable pathological causes.

The lesion which you find here is that which on other occasions I have shown you under the name of putrid and diffuse osteo-myelitis (see p. 215 et seq.).

E. *Veins.*—We examined the femoral vein near the point of fracture of the femur, and found it filled with black uncoagulated blood, without any sign of pus, and without the changes in the lining membrane which we often see in phlebitis. We also examined the nutrient vein at the nutritious foramen, and found that it also contained no pus and no blood clot. Consequently, in this case, the purulent infection could not be attributed to a suppurative phlebitis. We examined the tibial veins in the other case; one of them contained soft and badly smelling blood clots without pus; the others were permeable. In this also there was no suppurative phlebitis.

II. I am naturally led by what has preceded to ask the pathogenic question: What is the cause of purulent infection, and what relations exist between these visceral, articular, and muscular abscesses, and the suppurating wound which preceded and doubtless caused them? That is a question which has occupied surgeons since the end of the last century, and upon the answer to which they have not been able to agree, for the very simple reason that, in this malady, as in many others, such as most of the contagious diseases, a moment comes when appreciable phenomena are wanting, and when we are obliged to substitute an hypothesis for them, which some are willing to accept, but which the others criticize or reject, asking for a demonstration which no one can give them. The best plan, perhaps, in the presence of this difficulty would be to adopt no theory, and to wait until we should possess one established upon solid bases.

I am not quite ready to adopt this plan, for a reason which I gave to the Académie de Médecine at the time of the discussion on purulent infection,[1] that is, because we have efforts to make to preserve the wounded and those upon whom we operate from this dangerous affection, and it is very difficult to advance safely in the search for prophylactic measures if we are not guided by some idea of the pathogeny.

We can group in three main classes the opinions which have been held upon the mode of development of purulent infection.

1st. *Metastasis and Absorption of Pus.*—The authors who first noticed the connection between internal abscesses and external suppurations, especially Van Swieten, J. L. Petit, and Morgagni, spoke of the transfer of the pus from the wound to the viscera, but without explaining the manner in which this transfer was effected.

Afterwards Velpeau[2] and Marechal[3] were more explicit, and expressed the opinion that the pus of a wound could be absorbed by the open veins, pass thus into the circulation, be deposited in certain viscera, and there form the abscesses known as metastatic. This doctrine rested upon two incontestable facts: the presence of pus in the veins adjoining the wound in many cases of amputation, and the presence of pus in the parenchyma of the lung, liver, and brain. But the absorption of pus by venous trunks opening on the surface of a wound was a pure hypothesis. That venous capillaries are able to absorb liquid substances in contact with them is incontestable, but it was difficult to make a cautious physiologist admit that divided, gaping vessels could do the same. Again, by admitting for the formation of metastatic abscesses the transfer and the deposit of pus in the internal organs, they placed themselves in contradiction with the facts, since we have a first and even a second stage in which is found, at the place which would afterwards be occupied by the abscess, an infiltration first of blood and then of plastic material. Nevertheless the theory was accepted, and reigned for a certain number of years under the name, which you still hear from the mouth of old physicians, of purulent absorption.

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[1] Discussion sur l'Infection purulente (Bulletin de l'Académie de Médecine, March 27th and August 16th, 1871, tome xxxvi. pp. 182 and 620).

[2] Velpeau, Graduation Thesis, 1823, and several articles in the Archives Générales de Médecine, in 1824, 1826, and 1827.

[3] Maréchal, Graduation Thesis, 1828.

2d. *Theory of Phlebitis.*—Dance[1] taught, and after him Cruveilhier, Blandin, and P. Bérard developed, another doctrine, in which the mixture of pus with the blood still appeared as the main explanation of the disease, but in which phlebitis was made to play a great part, as well in the origin of the pus as in the mode of formation of the metastatic abscesses. Dance had discovered in many puerperal women this fact, recognized afterwards by surgeons in patients who had undergone amputation, that the venous trunks of the affected parts, we may say of the wound, were inflamed and suppurating, and that the pus often extended to the neighbourhood of a collateral branch opening into the affected vein. He inferred that the stream of blood through this collateral might carry away the pus and pour it into the general circulation. This pus once in the blood would mingle with it so thoroughly that it could not afterwards be separated from it. But it would alter it and render it so irritating that its passage into certain capillaries, notably those of the viscera, would lead to new phlebites (capillary phlebitis) characterized first by the formation of small clots, and then by the production of pus which would be the consequence of the irritation caused by the clots.

Although based upon an undeniable fact, the presence of pus in the veins, yet this theory was frequently found in contradiction with the facts, and still left a large part to hypothesis. It first supposed that in every case the veins corresponding to the wound which was the starting point of the infection had suppurated; but Darcet, Sedillot, Tessier, in works which I shall presently mention, had been led to modify Dance's and Blandin's theory, because they had often sought for pus in the veins without finding it.

I myself, when examining the bodies of patients who had died of purulent infection, have often carefully dissected the veins of the region of the injury or operation, within which the disease must certainly have had its origin, and I have found no pus in them. The theory of phlebitis supposed moreover that this pus found an easy passage into the neighbouring veins. But Tessier[1] proved clearly that the inflamed veins contained blood clots as well as pus, and that in many cases these clots lay above the pus, and were so adherent that they must have opposed its migration.

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[1] Dance, De la Phlébite uterine et de la Phlébite en Général (Archives Générales de Médecine, 1828-29).

Finally, this theory would lead us to expect that the pus globules that had passed into the blood could be detected in it by the aid of the microscope. But examination of the blood of pyæmic patients has shown that it does not contain more than the usual number of leucocytes.

As for a capillary phlebitis preceding the formation of the metastatic abscesses, that might possibly be admitted for the lungs, but it could not for the liver, the synovial membranes, or the muscular interstices, in which we do not find the purulent collections preceded by those blood clots which may be attributed to coagulation in the veinules.

To these serious objections it must be added that the theory of phlebitis had the disadvantage of leading to no prophylactic measures. Admitting that the disease is engendered by pus in the veins, we can suggest nothing to prevent the production of this result. Surgeons could only bow and wait. You will see that the final theory of which I have yet to speak, the one which I have long accepted, purely hypothetical as it still may be, has the advantage of inviting and justifying prophylactic measures the efficaciousness of which has been proved by experience.

3d. *Doctrine of Septicæmia.*—It was after the objections made by Tessier to the doctrine of phlebitis as the starting point of purulent infection, that the first works appeared in France upon this theory, which in the beginning received no special name, and to which we have since given that of *septicæmia.* This theory explains purulent infection by the absorption and introduction into the blood of invisible and intangible putrid or septic materials produced by the blood, serosity, gangrenous tissues, and mortified inflammatory exudations which are found on the surface of wounds during the early weeks of suppuration and sometimes later.

This theory, generally attributed, even by French authors, to German physicians, had in reality its origin among us. To assure yourselves of this fact you have only to follow the chronological sequence of works published upon this subject.

Darcet is the first, so far as I know, who, without using the word *septicæmia*, formulated in France the doctrine in question. But his work was based upon facts and ideas which were related not to purulent infection itself, but to other diseases which are closely allied to it by their nature and gravity, and which, in fact, belong to the great morbid group now called septicæmia.

Thus Gaspard and Magendie published, in 1823,[2] a series of experiments showing that the injection of putrid matter, notably of pus and urine, into the veins of animals produced artificial fevers similar to putrid and typhoid fevers.

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[1] J. P. Tessier, Journal l'Experience, 1838.

[2] Gaspard and Magendie, Journal de Physiologie de Magendie, 1823.

Bouillaud also, in a very remarkable article upon phlebitis, published in 1825,[1] pointed out the frequent coincidence in human beings of phlebitis with symptoms analogous to those of putrid or typhoid fever. He recalled Gaspard and Magendie's experiments, and spoke of pus formed by phlebitis and poured into the general circulation. But on the one hand he occupied himself especially with putrefied pus as the cause of the trouble, and assimilated it to the putrid matter used by Gaspard and Magendie, and, on the other hand, he explained the development of fevers by the passage of deleterious substances into the blood, without paying special attention to the one which has since been known as purulent infection.

Thus, too, Bonnet of Lyons, in 1837,[2] studying the changes of pus due to contact with the air, showed that in consequence of the habitual presence of sulphur in pus the usual products of its decomposition were sulphuretted hydrogen and sulphydrate of ammonia, and that these essentially deleterious substances, when once formed, could be absorbed by wounds and give rise to febrile complications, to which he gave no special name.

Lastly, Prof. Bérard also, long before the publication of his masterly article in the *Dictionnaire* in 30 volumes,[3] taught that a distinction was to be made between purulent infection, which he attributed, as did Dance and Blandin, to the passage of pus into the blood, and another variety of poisoning which occurred later, and which was due to the passage into the blood of the materials formed by the decomposition of the pus, which had been so well studied by Bonnet. Bérard gave the name of *putrid infection* to this malady, similar in its origin to purulent infection, but differing from it by the later period of its development, by its symptoms, its anatomical lesions, and its prognosis. If P. Bérard had applied the same opinion to the development of traumatic fever, and if he had employed the expression septicæmia to indicate these various morbid conditions due to the absorption of deleterious substances differing themselves according to the moment of their formation, he would have completed the edifice whose entire construction has been very improperly attributed to our German contemporaries.

The ground had thus been prepared by previous works when Félix Darcet,[4] leaving the rather vague generalities in which Gaspard, Magendie, and Mons. Bouillaud had remained, and leaving aside also P. Bérard's putrid infection, came to give an explanation, analogous to that of the others, of purulent infection properly so called.

This author reported a series of experiments which showed, according to him, that the decomposition of pus in contact with the air gave rise to two products: the one a subtile intangible poison, which, after having been absorbed, and thus distributed over the entire economy, would produce the phenomena of fever; the other less toxic, solid, divided into very fine particles, which could pass through vessels of a certain size, but were promptly stopped in the capillaries, especially in those of the lungs, and might, by acting as irritating foreign bodies there, lead to the formation of metastatic abscesses.

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[1] Bouillaud, Sur le Phlébite (Revue Médicale, 1825).

[2] Bonnet, Mémoire sur la Composition et l'Absorption du Pus (Gazette Médicale, 1837, p. 593).

[3] P. Bérard, Dictionnaire de Médecine, article Pus, 1842.

[4] Darcet, Recherches sur les Abcès Multiples et sur les Accidents qu' Amène la Présence du Pus dans le Systéme Vasculaire (Inaugural Thesis, Paris, 1842).

I am glad to recall this opinion, for you see in it the germ of the one uttered by Virchow fifteen years afterwards. The latter author attributes metastatic abscesses to the arrest in the pulmonary capillaries of small so-called embolic clots coming from the veins of the injured region. According to Darcet, also, fibrinous particles were arrested in the capillaries, but he supposed them to come from the pus and not from the blood.

After Darcet, M. Sédillot[1] wrote that purulent infection was not due simply to the passage of pus as such into the blood, but to the passage of putrid substances absorbed from the surface of a wound, and resulting from the ulcerative and gangrenous destruction of the parts in which suppuration was impending. According to this eminent surgeon, in short, the deleterious principles which cause the disease come especially from the mortified and sloughing portion, which we always find upon wounds at the beginning of suppuration.

Then M. Alphonse Guérin,[2] in 1847, likewise opposed Dance's theory, and sought to prove the correctness of the opinion which he afterwards defended warmly before the Académie de Médecine in 1871,[3] that purulent infection is due to the passage into the blood of special miasms scattered through the air, which fall upon wounds and are absorbed through them. According to M. A. Guérin the miasms in question are found especially in hospital wards, in those in which cases of purulent infection are already present, and in all crowded, badly ventilated places, and thus he explains the greater frequency of the disease in hospitals than in private practice, in the city than in the country.

Notice in passing, that this theory, without being strictly proved, had at least the advantage of causing the adoption of the great prophylactic measure, free ventilation and renewal of the air about those who have been wounded or operated upon.

Similar ideas, so far at least as the explanation of the disease by a sort of poisoning is concerned, were maintained by Jules Guérin[4] and Maisonneuve, who, admitting like Darcet and Sédillot the decomposition of the pus, blood, and mortified tissues on the surface of a wound, explained purulent infection by the absorption of these deleterious substances, whose passage into the blood may take place with the pus, but also without it.

I myself had been familiar for several years with these ideas. The autopsies of a certain number of wounded and amputated whom it was my lot to treat in one of the services of St. Louis Hospital, in charge of which I had been placed at the beginning of my surgical career, after the bloody outbreak in June, 1848, proved to me that suppurative phlebitis was absent much more often in patients affected with purulent infection than the works of Dance, Cruveilhier, and P. Bérard had led me to believe. And by suppurative phlebitis I mean that of the large veins which run through the soft parts of a limb that has been amputated, or has received a comminuted fracture. On examining the bones of those who had succumbed after multiple suppurations of the skeleton and soft parts, I found, it is true, suppuration and putrid changes in the medullary substance, and I at first supposed that, according to the theory warmly taught by Blandin, the pus, instead of forming in the large veins just mentioned, had started in those of the marrow, and that thus a phlebitis of the bones had been the starting point of the purulent infection.

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[1] Sédillot, De l'Infection Purulente (Annales de la Chirurgie Française et Etrangère, 1843, tome vii. p. 128), and De l'Infection Purulente ou Pyoémie, Paris, 1849.

[2] Alph. Guérin, Thèses de Paris, 1847.

[3] Alph. Guérin, Discours sur l'Infection Purulente (Bull. de l'Académie de Médecine, 1871, tome xxxvi. pp. 202 and 307).

[4] J. Guérin, Bull. de l'Acad. de Médecine, 1871, tome xxxvi. p. 332.

Seeking next upon the cadaver for the proof of this phlebitis of the bones, I found in many cases the nutrient vein filled with pus. But in many others I found nothing of the kind. I was unable to isolate the veinules of the marrow itself sufficiently to determine the presence of the pus which would demonstrate the existence of phlebitis.

I was, therefore, forced to recognize that if phlebitis of the bones may in certain cases, and when phlebitis of the large veins of the soft parts is absent, be invoked as the cause of purulent infection it cannot be demonstrated anatomically.

But while making these searches, I was struck with the profound alteration of the medullary substance, in which I vainly sought for suppurating veins. I saw that it was gangrenous, mixed with altered blood and decomposed pus, and that it had the odour of putrefaction. I then began to ask myself if these products of putrid osteo-myelitis of which I have already spoken to you (page 214) might not pass into the circulation without being carried there by the pus.

For such a thing to be possible, it was necessary that the surface of the wound and that of the bone should be capable of absorption. Bonnet of Lyons[1] had admitted the first. The teachings of physiology also justified the belief. Nevertheless, I studied this question by experiments upon men and living animals. In 1854 and 1855, I placed a great many times pads soaked with a ten per cent. solution of the iodide of potassium upon wounds at different periods of their course, and half an hour or an hour afterwards I easily detected the iodine in the urine or salivæ by the aid of starch, the mixture of which with these liquids gave the blue colour of the iodide of starch. I have already spoken to you (page 228) of these experiments, and of another which I made upon dogs three different times, and which consisted in forcing into the medullary canal of the femur, by means of a syringe and a tube provided with a screw, which I fixed in one of the walls of this canal, a little of the same solution of iodine. A faucet placed at one of the ends of the tube enabled me to retain the liquid, and to keep it from spreading over the soft parts. In each case I found the odine in the animal's urine about three-quarters of an hour afterwards.

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[1] Bonnet, loc. cit.

In my opinion, therefore, it could not be doubted that the surface of a wound and that of the medullary canal were capable of absorption. A new demonstration of the former has likewise been furnished by M. Demarquay in a paper read before the Académie de Médecine in 1867,[1] and upon which I made a report.[2]

Having acquired these two facts, the presence of putrid substances upon wounds and in the medullary canal, and the possibility of absorption, I continued to examine the large veins in the bodies of those who died of purulent infection, and the interior of the bones which had been attacked by acute suppuration, and I felt more and more convinced that it was not simply the passage of the pus of suppurating veins into the blood which occasioned the infection in question, that if this passage took place consecutively to phlebitis, the pus of the veins probably swept along with itself putrid matter, coming either from the wound or from the bone, and that finally the passage of these putrid substances might take place and cause the affection without the veins sharing in the suppuration, and without the pus serving as vehicle. I developed this opinion in my work upon V-shaped fractures.[3]

But I did not stop at purulent infection. In the same article, as I have already told you (see page 229), I did not hesitate to assign a poisoning as the cause of grave traumatic fever; and as that occurs especially in cases in which the large bones are the seat of suppurative inflammation together with a concomitant wound, I thought that the poison in such a case also was formed out of the medullary substance exposed to the air, and seriously inflamed in consequence of the accident. I further expressed the opinion that other febrile surgical affections, "such for example as that seen after the opening of an abscess by congestion,"[4] after incisions and operations upon the urethra, after the opening of hæmatoceles with thickened walls, that which characterizes erysipelas, and lastly, that called puerperal fever" can be explained by an analogous poisoning.

You see, gentlemen, I also lacked only the word *septicæmia* to sum up and make intelligible my conception of the pathogeny of purulent infection, as well as of the other forms of febrile affections that may complicate wounds at the different stages of their evolution. I admit that I was wrong in not making use of this word which has the advantage of expressing very well the general doctrine I adopted, but I did not think of it.

Since that time I have not failed to expound in my pathological and clinical lectures these ideas of the method of development of traumatic fever and purulent infection, and some years afterwards I saw with satisfaction the confirmation by German authors, by means of experiments upon animals, of the views which I had uttered regarding traumatic fever, and those which my compatriots and myself had held upon purulent infection properly so-called. These authors did not quote us, and seemed to think that they were the sole inventors of the doctrine of septicæmia. They fell into this error, doubtless, because they were not familiar with what had been done here. The thing which astonishes me, that against which I protested before the Académie de Médecine,[1] the 27th of March, 1871, is the readiness with which French authors, forgetting in their turn what has been done amongst us to establish this doctrine, have not feared to give it the name of German doctrine. According to what I have just told you the Germans did not invent this doctrine, they only strengthened it, fortified it, and popularized it. Neither did they invent the word septicæmia, which for more than twenty years has had a place in the nomenclature of our learned compatriot Piorry.

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[1] Demarquay, De l'Absorption sur les Plaies (Bull. de l'Académie de Médecine, Paris, 1866–67, tome xxxii. p. 157, and Mémoires de l'Acad. de Méd. 1867–68, tome xxviii. p. 424.)

[2] Gosselin, Bull. de l'Acad. de Méd. 1866–1867, tome xxxii. p. 930.

[3] Gosselin, loc. cit.

[4] A collection of pus which has migrated under the influence of gravity or other mechanical cause from the point at which it was formed.—TRANS.

And now, gentlemen, after all the researches I have made, after the fresh study of the subject into which I was necessarily led by the long discussion in the Académie de Médecine, I adopt and I offer you the following theory in explanation of purulent infection. This grave disease is composed mainly of two things:—

1st. A set of clinical symptoms which we can classify under the name of fever.

2d. Multiple anatomical lesions the chief of which are the so-called metastatic abscesses.

Let us examine these two points successively.

1st. I consider the fever as the result of a poisoning by toxic materials formed on the surface and especially in the deep parts of wounds.

These toxic materials are often transported by the large veins, within which they are mixed either with pus or with blood. I do not believe that simple non-putrid pus causes the disease in question. If the pus passes into the blood it produces it only because it is mingled with deleterious substances formed either by the decomposition of the pus within a vein which has become the seat of a putrid suppurative phlebitis, or by the decomposition of other parts of the wound, the products of this decomposition being capable of causing suppuration by their passage into the large veins, at the same time that they infect the organism. In my opinion thus there are several gates by which the toxic substances which cause the infection can enter: first the large veins containing altered pus and communicating with the general circulation by some collateral branch, the flow through which has not been obstructed by a clot; next, the veinules which absorb and transport putrid materials without their being arrested in the large veins and mixed there with pus or coagulated blood; and lastly the lymphatics which may likewise convey these poisons without themselves receiving any injury or any irritation from contact with them which might make them suppurate as the veins do. For, notice it well, gentlemen, the lymphatics and the veins act in three ways in the development of purulent infection:

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[1] Bull. de l'Académie de Médecine, 1871, tome xxxvi. p. 182.

sometimes they are merely passages and undergo no change, sometimes their internal surface inflames and suppurates in consequence of the contact of the poisons which pass over it; sometimes they take on suppurative inflammation before this passage and as a result of their participation in the inflammatory process which invades all the constituent parts of the solution of continuity, and the pus which has formed within them becoming putrid furnishes the deleterious material which the collateral branches then carry into the general circulation. Thus we explain all the facts which occur since we have recognized the relation between phlebitis and purulent infection, to wit: sometimes the coincidence of the suppurative phlebitis with this disease, sometimes, and more rarely, the coincidence of suppurative lymphangitis, sometimes, on the contrary, the absence of pus in these same vessels, or at least in those of them which anatomical investigation allows us to trace and to observe.

Now, whence came the poisons and how are they formed? I have told you that possibly they may come from pus previously formed within the veins and the lymphatics, and changed either by contact with the air or by the unwholesome nature of the morbid process which gave rise to it. But they often come from the suppurating wound and are carried into the lymphatic and venous trunks by the capillary vessels which have absorbed them on its surface. Their origin then is either in the decomposition of the pus, or of the blood, or of the suppurating and gangrenous medullary substance, or of the gangrenous and broken-down soft parts, or several of these together. This decomposition is still the consequence either of contact with the air, or of the malignity of the suppurative inflammation; but the conditions in which the disease is most frequently developed compel us to attribute most influence to the air. For you know, gentlemen, that the suppurating wounds which are most often complicated with pyæmia are the deep ones, that is, they are those in which, notwithstanding the surgeon's efforts, the pus is retained between the muscular layers, in which, furthermore, the sloughs of the aponeuroses, tendons, and muscles are slow to be eliminated, and remain so long as their separation has not taken place in the depths of the wound.

This forced sojourn of poorly vitalized or quite dead tissues in the midst of soft parts which at the same time admit the air, leads to the decay—that is, a putrid or septic decomposition similar to putrefaction in the open air—of the soft parts which are entirely separated from the organism. You see how much more favourably constituted in this respect superficial wounds are; the pus flows away easily, the eschars are thin and quickly eliminated, and, if necessary, we can ourselves remove them. The prolonged sojourn which is favourable to decay and to the formation of toxic substances does not exist here.

And let us not forget that among the deep wounds the ones which give rise most often to this affection are those at the bottom of which large bones take part in the suppuration.

In fact, before the development of suppurative inflammation, and during the first few days which follow it, something analogous to what we see upon the soft parts takes place within the bones. In the former there is no suppuration without a certain amount of alteration of the blood remaining on the surface of the wound, and without the production of eschars and of exudations likewise destined to mortification and elimination. When the wound is deep these phenomena appear throughout its whole extent, consequently within the medullary canal, and probably also in the canaliculi of the bone. Suppuration is preceded and accompanied within these canals by gangrene and exudations whose products are altered by contact with the air which has penetrated and become confined there.

Putrid and toxic products, therefore, are formed in every suppurating wound. But when the wound is superficial they are less abundant and remain for a shorter time, and consequently are less liable to be absorbed than when it is deep, or where a broken or divided bone lying at its bottom takes part in the suppuration. In this latter case there are moreover the toxic products formed by the medullary fat, products which may be dangerous in themselves, but which are rendered especially so by their prolonged retention in an open cavity. This, I think, explains why purulent infection is much more common when suppuration of the soft parts is accompanied by suppuration of a bone than when it is not so accompanied.

In short, gentlemen, according to the theory which I propound to you the dangerous alteration of the blood which produces the disease is not due exclusively to pus; it is due to numerous putrid substances, of which some have their origin in the pus, and the others in the decomposed blood, the eschars, and the exudative detritus of the putrid and gangrenous marrow.

But here three objections are made. I do not hesitate to meet and answer them.

They say to me: You attribute a rôle to gangrene and to the detritus which it furnishes for absorption, and yet you are the first to recognize, and you often teach, that destruction of soft parts (normal tissues and tumours) by caustics which produce eschars is almost never followed by purulent infection. That is true, but notice the differences: when we use caustics their first effect is to destroy the lymphatics and bloodvessels, and to cause their obliteration by the coagulation of the blood and lymph, and by primitive adhesion by means of plastic lymph; the eschar is produced immediately, or at least is completed very rapidly, and when decomposition sets in, when suppuration and elimination begin, all communication has long since ceased between the mortified part and the adjoining living tissue. Moreover there is no blood to putrefy, no exudation deprived of vitality, no serosity liable to decomposition; in a word, there are none of the many sources of poison which we find in wounds. The eschars of the latter form much more slowly; during several days they have still enough vitality to carry on exchanges with the living parts, and to communicate to them the putrid substances they have produced; the adjoining vessels are not yet obliterated, they too share in the unhealthy inflammation which invades the entire solution of continuity; and, lastly, there are, together with the eschars, those other liquid and fatty products which suffer change by contact with the air, and which are not found upon parts destroyed rapidly by caustics.

The second objection is this: You regard as one of the factors the suppuration of the bone and especially of the marrow, and yet you show us every day patients suffering with suppurative osteitis, in the affections generally known as *caries* and *necrosis*, who are not attacked by purulent infection. They live months or years with this suppuration of the bones and die from other diseases. That is all very true; but notice again that it is not the suppuration alone that I regard as a factor, but also the destructions and mortifications that accompany its beginning, and which you do not have when the osteitis advances slowly towards suppuration and when the latter is not carried on in contact with the air. When these ossifluent abscesses of caries and necrosis open and the air penetrates into the cavity, it finds pus and nothing but pus there. It may still cause this pus to putrefy. When the cavity is deep and extensive, as in abscess by congestion, this putrefaction may become the cause of another variety of septicæmia, that known by the names of putrid infection, hecticity, hectic fever. But the air does not meet, as it does in wounds, with those mutiple elements of which I have spoken, blood, fat, mortified exudations; now, it is this multiplicity of elements which gives rise to the septic products capable of engendering pyæmia. In short, a great distinction must be drawn, in this respect, between acute suppurative osteitis and chronic suppurative osteitis. The first produces, together with pus, putrid substances which the latter does not.

Furthermore, we must draw a distinction between the acute suppurative osteitis which is set up without preliminary solution of continuity, and that which occurs after such solution of continuity. The former sometimes causes purulent infection, as I told you when speaking of the spontaneous acute osteitis of adolescents; but the latter is much more liable to do so, though not always and inevitably.

Remember that the essential condition of the production of purulent infection is that the acute suppurative osteo-myelitis should become putrid. Now this does not always happen, and, as I have often told you, our treatment should be directed towards, and should sometimes succeed in, preventing it.

The third objection is as follows: You speak to us of poisons coming from the blood, from serosities, exudations, pus, eschars, and mortified marrow; but now which one of all these furnishes the real poison of purulent infection? And furthermore, when you explain traumatic fever you still take your poisons from the same sources. Are they then the same in both cases? On this point, gentlemen, I do not conceal my embarrassment and my doubts. If I could isolate the organic poisons of a wounded patient, if I could watch their formation, I would tell you exactly where they arise, whether they result from the union of molecules coming from all the altered parts of the wound, or whether they come mainly from certain ones of them. I would tell you also in what the pathogeny of traumatic fever differs from that of purulent infection. But none of these points can be made out by me. I see an important effect produced—a dangerous fever. I see, as a plausible explanation of this effect, putrid substances and their absorption. But I can go no further, and that is why I told you at the beginning that, whatever we might do, we always brought up in this research against something that was inexplicable and hypothetical.

I presume that the poison of purulent infection has a complex origin, and that the molecules furnished by the putrescent marrow of the bones play a large part in it. I presume that the poison formed during the first few days, that which occasions traumatic fever, is different from that which is developed later and which gives rise to purulent infection. I recognize that according as the symptoms of the presence of the former have been more marked, so is the latter more likely to be produced. I understand how distinguished surgeons, M. Billroth, in Germany, M. Verneuil, in France, seeing so often grave traumatic fever precede and in some sort prepare the way for purulent infection, have been led to think that these two affections are but one and the same, and that pyæmia is the second degree of a septicæmia of which traumatic fever is the first. But upon this point we are all unable to prove anything. We are obliged to confine ourselves to suppositions, to ask indulgence for our theory in consideration of the excellent points it furnishes for prophylaxis as I shall try to show you in another lecture.

2d. Let us now see how the multiple suppurations, often internal, sometimes external, the so-called metastatic abscesses, can be explained by the theory of septicæmia.

Here again I shall be compelled to admit that a rigorous explanation is nearly impossible.

I have already spoken of the original theory, the deposit in all parts of the body of pus taken up or absorbed from the surface of the wound, and you know the reasons why we could not adopt it.

The first was that it is difficult to believe in an absorption sufficiently abundant to supply the numerous and sometimes large collections which we find, especially those which form within the synovial and serous cavities.

Next, the theory being true, the microscope ought to show large quantities of leucocytes in the blood of pyæmic patients; but, as I told you, the blood contains only the usual number. And finally, since the facts have led us to the opinion that it is not pus but invisible and intangible poisons which cause the infection, we cannot admit that the pus is all formed in the blood and has only to be deposited in the organs.

I spoke also of the suppurative capillary phlebitis admitted by Dance and Cruveilhier as a means in the formation of metastatic abscesses. These authors thought that the blood, by admixture with pus, became irritant, phlogogenic, as it is termed to-day, and that, passing into the venous capillaries of certain viscera, especially those of the liver and lung, it produced in them a suppurative inflammation similar to that caused by mercury and other foreign bodies when injected into the veins, as in Cruveilhier's and Darcet's experiments.

I should be willing to accept this interpretation if the metastatic abscess developed everywhere in the same manner, that is, if it passed everywhere through a first stage characterized by the black spot resembling an ecchymosis, and which might possibly be attributed to the stoppage of clots in the inflamed veins. But this first stage is seen only in the lungs, sometimes in the spleen. We do not find it in the liver, where the abscess seems to begin by a yellow spot which is not blood, and which is not pus either. Still less do we find it in the serous and synovial membranes and the muscular interstices, where the pus forms very rapidly without being preceded by any appreciable lesion.

The same objections can be made to Darcet's fibrinous and Virchow's sanguineous embolus. You may possibly accept it for the lung, but you need another explanation for the liver, the serous and synovial membranes, and the muscular interstices.

In presence of these varieties in formation, as shown by anatomical investigation, there is only one thing to be said, and that is that as soon as the blood has become altered by its infection, and the fever has declared itself, the whole economy becomes apt for suppuration. So long as there is no poisoning, the suppuration remains local, and all the efforts of the organism are turned to the process of repair, of which the regular secretion of pus is an essential condition. As soon as poisoning has occurred, the pyogenic aptitude is disarranged; it becomes generalized, and the organism makes pus, at the expense of the altered blood, everywhere except at the point where it first prepared to make it.

LECTURE XXXI.

ETIOLOGY OF SURGICAL SEPTICÆMIA.

General etiology of traumatic fever and purulent infection. 1st. Local or anatomical causes. 2d. Individual general causes—Influence of age, sex, temperament, alcoholic habits, moral emotions, physical suffering. 3d. Atmospheric general causes, vitiation of the air by crowding—Possible absorption of miasms by the wound and by the respiratory organs.

Gentlemen: I gave you in a former lecture my opinion upon the mode of development of purulent infection. But that lesson would remain sterile if I did not try to show you how, on the one side, the tangible causes of the disease accord with this pathogeny; and how, on the other, the knowledge which we have of the relations between the etiology and the pathogeny leads to therapeutical and prophylactic notions. But, as a close connection exists between traumatic fever and purulent infection, and since the prophylactic measures employed against the one are equally suited for the other, I prefer now to unite them under the name of *septicæmia*, or, as M. Jules Guérin has styled it, of *purulent intoxication*, and to apply to both the considerations which I have to present you.

I warn you, moreover, that these considerations apply not only to gunshot fractures but to all wounds and operations which expose to surgical septicæmia.

Etiology.—Purulent poisoning (and by this term it is understood that we mean that which starts from a wound in which suppuration is impending, as well as from one which has begun to suppurate) recognizes three kinds of causes: local or anatomical causes, individual general causes, and atmospherical general causes. Let us see how these causes accord with the pathogeny I laid before you.

1st. *Local or Anatomical Causes.*—We know them; they may be summed up as follows: formation upon the wound of putrid substances or septic poisons, and possible absorption either before or after the establishment of the suppuration. We know that deep wounds, especially those in which the bones inflame and take on putrid osteo-myelitis, are more likely than any others to cause it.

Do not lose sight of the fact, that, if decomposition of the pus is one of the sources of the formation of the poisons, it is not the only one, —it is not even the most important. In fact, if putrefaction does not occur upon the surface and in the deep parts of the wound during the first few days, and if the pus alone appears there, poisoning is rare. Next, when the wound has passed this period of twenty or twenty-five days, during which putrid substances are formed upon and remain in it, and when there is no longer anything but pus, poisoning again becomes more difficult and rarer. If then I have retained the name of purulent infection, it is in order to conform to general usage, and also because the formation of the poisons coincides with the beginning of the formation of the pus. Do not forget, on the other hand, that this formation of putrid substances upon wounds is the consequence of a process of destruction which follows the traumatism and precedes the definitive establishment of the process of repair. Certainly it would be much better if things took place differently; but the fact is none the less true, that a large wound, before it becomes lined with a red and freely suppurating membrane which is the indication of properly advancing repair, covers itself with sloughs more or less deep, useless exudations, and blood clots, and that all these products exposed to the air may there undergo putrid changes.

This preliminary destruction is more or less marked. It is accompanied by a more or less considerable putrefaction. There lies the explanation of the differences which we see in practice, certain subjects being much more exposed to putrefaction and its consequences than others. The study of the general causes will also show us the same thing.

2d. *Individual General Causes.*—It has been correctly said that persons of every age, of both sexes, of every temperament may be attacked by septicæmia. But with respect to frequency there are individual variations which we must recognize in practice.

Let us first consider age.

Beyond all question, children may have both kinds of poisoning. But traumatic fever, violent enough to be fatal, is quite exceptional among them, and it is undeniable that of one hundred children who have suffered amputation or have received gunshot fractures, the number attacked by purulent infection is much less than is the case with adults. I wish I could indicate this proportion by figures, but I cannot, since it has been my lot to treat only a few children. I make this statement in accordance with the general impression left by my personal experience, limited though it may be, and with the results furnished me by surgeons of hospitals for children. This diminished frequency can be easily understood. The constitution of a child has not been exhausted by the general causes just mentioned: bodily fatigue, moral impressions, alcoholisms, syphilis; furthermore the marrow of their bones is less abundant, less fatty, more vascular, less liable to putrefy; lastly the vitality of all their tissues is greater. There is then less tendency to destruction, and consequently fewer obstacles to the process of repair than in the adult; it is more difficult for the phlebitis and osteo-myelitis to take on a putrid character.

Let us now consider sex.

It seems to me that women are rather less exposed than men to purulent infection. This is both the result of a general impression and of my own statistics. In the paper which I read before the Medical Congress of 1867,[1] I reported eight cases of amputation of the thigh or leg, in women, with three deaths, two of which were by purulent infection and one by hecticity. I had had these two cases of purulent infection out of eight operations, a proportion of twenty-five per cent. The same operations performed upon men have given me, on the contrary, the proportion of about forty per cent. of the same affection. Again, I recall the cases of women treated by me after the civil war in 1871, for gunshot wounds involving important parts of the skeleton. They are not numerous: a fracture of the shoulder, a fracture of the humerus, two fractures of the leg, a fracture of the superior and inferior maxilla. None of them had purulent infection, none died, and yet all had at first acute and then chronic suppurative osteo-myelitis. But the osteo-myelitis was not putrid, or was so to so slight a degree that poisoning did not follow. Three of them had traumatic fever, but it was moderate and, as happens in such cases, did not lead to the fever of pyæmia. In this respect there is a distinction to be made between traumatic erysipelas and purulent infection in women. They suffer more frequently from the first and less frequently from the second than men do. The explanation is to be found in causes analogous to those favouring childhood. Although a woman is more impressionable, her constitution is ordinarily less broken down by bodily toil, irregular hours, and alcoholism, than a man's is, and this is especially true of the men of the working classes in large cities, those who supply most of our hospital cases.

As for temperament, I know nothing in particular, and I am forced to recognize that the most robust, as well as the most delicate, may be affected in the same proportion as soon as the other causes begin to act.

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[1] Actes du Congrès Médical International de 1867, p. 269.

The facts which came to our notice after our late battles convinced me that fatigue resulting from long marches and loss of sleep, alcoholic habits, exposure to cold prolonged over several hours, especially at night, after receipt of the injury predispose, as essentially debilitating causes, to the spread of the preliminary destructions which are the main source of the poisoning.

Moral emotions—those resulting from the discouragement produced by defeat, those caused by the prospect of a long illness, of a permanent infirmity, by the fear of death, a fear necessarily increased in a hospital ward by the sight of the death of neighbours or comrades wounded on the same day—these emotions are incidental, though not predisposing causes of poisoning. In order that repair shall go on regularly, and that the putrefaction of the preliminary work of destruction shall remain limited, it is necessary for the patient to eat, sleep, and digest. This he does not do, or he does badly, if his mind is preoccupied and saddened, as it often is after severe injuries.

I have spoken elsewhere[1] of the influence of physical sufferings, the long duration, or too frequent repetition of which, produces similar results.

3d. *Atmospheric General Causes.*—These are certainly the ones which exert most influence.

Tessier, when opposing Dance's doctrine of the consequences of suppurative phlebitis, was the first to show clearly that purulent infection was due mainly to the crowding of the wards of a hospital with sick and wounded, and that this crowding did not explain the development of venous suppuration and the consequent passage of pus into the blood, and that it certainly acted in another way.

Since then hospital surgeons in large cities have learned from those of their confrères who practise in the country and small towns, and who treat their wounded at home or in hospitals containing few patients, that purulent infection and grave traumatic fever are very rare among them. When Messrs. Topinard[2] and Léon Lefort,[3] after their visits to England, taught us that surgical poisonings were less frequent in the London than in the Paris hospitals, they indicated as principal causes of this difference: 1st, the fact that the English wards were less crowded than the French; 2d, the more complete renewal of the air in the wards by the frequent opening of the windows as well as by an efficient system of ventilation.

Still later American surgeons confirmed these views by the statistics of the wounds and operations which the war of the rebellion gave them the opportunity of observing upon a large scale.

While in France, at the time when Malgaigne published his first and important work upon the results of capital operations in the

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[1] Actes du Congrès Médical International de 1867, Paris, 1868.

[2] Topinard, Thèses de Paris, 1860, No. 28.

[3] L. Lefort, De la Résection de la Hanche dans les Cas de Coxalgie et de Plaies par armes à feu (Mém. de l'Acad. de Médecine), 1861, tome xxv. p. 445.

Paris hospitals, the proportion of deaths, almost all of them due to purulent infection, was from 70 to 75 per cent., in these American statistics the proportion was only 30 to 35 per cent. for the same operations. The difference was explained by the two circumstances that in America the patients' beds were widely separated from one another, and, above all, were placed in tents far from other habitations and almost constantly open.

The general impression which resulted from these works,—and which, for my part, I aided to create in France by giving the greatest publicity to M. Lefort's comparative studies upon the English and French hospitals in my report to the Académie,[1] and in the long discussion upon nosocomial hygiene which followed,—the general impression, I repeat, was that vitiation of the air by crowding is the principal cause of surgical poisonings.

In what does this vitiation consist? Is it due simply to the various emanations arising from the presence of too many people in a limited space where the air is not sufficiently renewed? Is it due to special miasms arising in wards occupied by wounded persons from suppurating wounds, or to specific miasms coming from those already affected by surgical poisons? Does it occur in all these ways at once? Thus far our experience has not enabled us to pronounce upon this subject. Everybody admits and ought to admit, for clinical experience proves it most positively, that the crowding of patients vitiates the air, and that this vitiation engenders septicæmia in patients who have deep suppurating wounds. But no one can say positively in what this vitiation consists.

And here another question naturally arises. The air being vitiated by these miasmatic emanations, by what way do they penetrate into the organism of the wounded patients, and how do they act in producing surgical poisoning?

As for the penetration, we have to choose between two routes; that of the wound, and that of the respiratory organs, unless we admit that the poison enters by both.

Our learned colleague, M. Alphonse Guérin, did not hesitate to choose the first. He distinctly maintains the opinion that wounds, being able to absorb, introduce into the general circulation the miasms which the vitiated atmosphere deposits upon them; the first conclusion that he drew was one confirming Tessier's views, that we should prevent, above all, the vitiation of the air by crowding. Afterwards, in 1871, he adopted a second one, the necessity of the occlusive apparatuses of which I shall soon speak.

This theory, which has had the merit of giving a great impulse to the search for and application of prophylactic measures, is certainly very attractive. But I have made and still make this objection to it: all wounds are capable of absorption, the superficial as well as the deep ones, the ossifluent as well as those which do not communicate with the bones, and yet they do not all absorb those atmospherical miasms which are supposed to be able to develop the infection. You know that patients with superficial wounds are less exposed to it than those with deep wounds, and those with deep wounds, and without osteo-myelitis, much less than those with deep wounds and osteo-myelitis. It is in vain that M. Alphonse Guérin replies that deep and ossifluent wounds have much larger surfaces of absorption. The answer to that is in these enormous solutions of continuity seen in burns and in certain accidental wounds which pass through all their phases without becoming the occasion of purulent infection. Moreover, if the infection were caused by the absorption of atmospherical miasms by the wound, why should this absorption take place during the first twenty-five days and not afterwards? The wounds of which we are speaking last for forty, sixty, ninety days. During all this time they are able to absorb, during all this time they are in contact with vitiated air, yet the further we get from their beginning the less is infection to be feared.

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[1] Bulletin de l'Académie de Médecine, 1861–62, tome xxxvii. p. 53.

I do not deny, if you will, the absorption by the wound of miasms contained in the air. But it is impossible for me, for the reasons I have already given, to believe that this absorption is sufficient by itself to give rise to grave traumatic fever and purulent infection. We can, moreover, explain the local action of the vitiated air otherwise than by the direct penetration of the miasms into the circulation. I have told you that the mortifications and putrid changes in wounds were due to two main causes: a certain quality of the inflammation which depends upon the idiosyncrasy of the patient, and the contact of the air. Now it is possible that air vitiated by these invisible miasms in hospital wards exerts its decomposing influence more easily than perfectly pure air does. Still, I do not hide from you that this is only a presumption, and that I can in no way prove the proposition.

Let us now examine the other route, that of the respiration. If the vitiated air enters the lungs at each inspiration, it is allowable to believe that the deleterious miasms contained in it penetrate into the blood, and that this penetration affects the health in a way that is injurious to the progress of a wound. Two serious objections present themselves here: First, this same vitiated air is breathed by other patients who have no wounds. They are not attacked by any fever, and their health does not seem to be affected in any way by this hygienic condition which is so unfavourable to those with serious wounds. Then all those who have wounds do not become poisoned, notwithstanding that they all breathe the same air. How is it then that this vitiated air, if it acts through the respiratory organs, produces upon some what it does not produce upon others?

There is, it is true, a new difficulty in the explanation. But it seems to me capable of removal by the ideas which I propounded upon the conditions of local putridity necessary to the development of surgical poisonings. In order that these putrid substances should not form it is necessary, as I have already told you, that the patient's health should be good, and that all his functions should be regularly performed. It is especially needful that the blood should be properly transformed and purified, and that no foreign element should change it. This condition is necessarily affected by respiration in an atmosphere charged with miasms. If the passage of these latter into the blood does not sensibly affect the health of those who have no open wounds, or have only superficial ones, yet I can understand that it might so affect those who have to undergo deep suppuration, and especially that of osteo-myelitis. In fact it is at the expense of the blood that the exudations necessary for the formation of a good pyogenic membrane are made. If this blood is not sufficiently pure it produces unhealthy membranes, which mortify; it excites this excessive inflammatory process, which leads to the partial death, and ultimately to the putrid decomposition of the tissues covering the solution of continuity. In a word, vitiation of the blood by imperfect hæmatosis acts upon the wound which is about to suppurate in the same way as vitiation caused by fatigue, loss of sleep, moral emotions, alcoholism, and prolonged exposure to cold; and you understand that when all or many of these causes of vitiation act at the same time, the patient has but a slight chance of escaping a grievous poisoning. Happily there are organisms which resist everything, and we see from time to time in our wards patients who, notwithstanding the existence of unfavourable conditions, escape suppuration, or, in whom, if it occurs, it does not assume the putrid character.

I sum up my views upon the influence of unfavourable atmospherical conditions in saying that if this influence is local in a certain measure, which I cannot prove, it is also general, in the sense that it gives the blood, through the respiratory organs, certain qualities which predispose it to furnish upon the wound and in the medullary canal products which putrefy easily.

And I express my views upon the general etiology of traumatic poisonings in saying that they depend upon a series of individual and atmospherical causes, each of which acting alone may produce them, but which in all probability unite and act simultaneously; and it is not unlikely that poisons varying in nature and amount may result from the complex intervention, and in different proportions, of all these causes. Thus may, perhaps, be explained both the differences which we see in the more or less rapid course of regular traumatic fever and purulent infection, and those unusual forms of fever which do not appear early enough to belong to primitive septicæmia, and which, on the other hand, not presenting the ordinary symptoms of purulent infection, ought to be considered as intermediary or incomplete septicæmias, to which the clinic has as yet given no special name.

LECTURE XXXII.

TREATMENT AND PROPHYLAXIS OF SURGICAL SEPTICÆMIA.

Curative treatment of septicæmia almost nil—Prophylactic treatment very useful—Isolation of the wounded in pure air frequently renewed—Different dressings: uniting, occlusive, infrequent, simple, and repeated—Preference given to the infrequent and occlusive cotton batting dressings.

GENTLEMEN: I have little to say on the subject of the curative treatment of surgical poisonings.

In traumatic fever, as I have told you, it is limited to diluent or tonic drinks, a laxative, a few injections, and a dose of opium at night. But we must not deceive ourselves; these measures have but little effect and are almost unmeaning.

In purulent infection the tincture of aconite has been recommended, and I have often prescribed it in a potion or in the tisane, in the dose of two grammes the first day, three grammes the second, and four grammes the following days.[1]

I have also given the sulphate of quinine in moderate doses, say seventy-five centigrammes or a gramme daily, or even in a large dose, as M. Alphonse Guérin advises, say a gramme and a half the first day, and two grammes on the following days, and although our colleague has had some success with this, I have seen it, like the preceding one, fail in most cases.

It is true that I saw one of our patients in May, 1871, with a suppurating gunshot fracture of the right humerus, recover from a purulent infection after having taken for a fortnight the daily dose of two grammes, and even during the last few days of two and a half grammes of sulphate of quinine. But, on the other hand, I saw a wounded man at the Hôpital St. Louis, in 1848, and two at La Pitié, in 1865 and 1866, get well without the help of any medicine.

In short, some fortunate subjects after having shown all the symptoms, especially the repeated chills, of purulent infection, get well. But this has not happened often enough to prove the real efficaciousness of any drug. The few who have recovered after treatment with one or another of them, would probably have done just as well without them.

I do not, however, wish to discourage you, and to advise you to remain inactive spectators of the contest carried on by the organism against the poisons. I advise you to give sulphate of quinine notwithstanding my doubts of its value, to give with it from thirty to sixty grammes (℥i–ij) of brandy daily, pure or mixed, in a potion with from two to four grammes of the extract of cinchona. I wish only to warn you that recovery is very rare, that the real curative treatment is yet to be found, and that consequently we must first turn our attention to prophylactic measures.

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[1] This is the French tincture. The dose of the *tinctura aconiti radicis* (U. S. Pharm.) is from 5 to 10 drops gradually increased.

Well, the theory which I have developed before you has, above all others, the advantage of opening the way to every prophylactic endeavour, and that is why I have adopted it, notwithstanding the hypothetical nature of so much of it.

I have told you, that, according to the unanimous opinion of all contemporary surgeons, air vitiated by crowding is one of the main causes of the poisonings, and especially of purulent infection. You see at once the consequences. When you have a patient whose wound exposes him to septicæmia, and especially when, in all probability, acute suppurative osteo-myelitis may set in, you should put him in a room which is not crowded and in which the air can be changed.

Of late years you have heard small hospitals recommended, small wards, and, so far as possible, the erection of hospitals outside of the large cities. As applied indiscriminately to all patients, these precautions are exaggerated and useless.

Speaking only of patients with surgical affections—those who have no wounds and those whose wounds or ulcers are superficial are not exposed in ordinary hospitals to the diseases we are now considering. It is always well to avoid crowding, to have, for example, about 40 cubic metres of air for each bed, to have means of ventilation, to change the air by opening the windows, to have separate rooms for the delirious and those with erysipelas. On these conditions a hospital may be established in a large city and receive without objection 500 or 600 patients.

But these conditions are not sufficient for those whose wounds expose them to traumatic poisoning, nor are they sufficient for puerperal women whose uterine wounds expose them in the same way.

For such patients, in hospital, large isolated rooms with good ventilation are needed, each to contain only three or four persons. These rooms may, if necessary, be in an ordinary building, but the hygienic conditions are best realized by a tent, large enough for four or six beds, placed in a large open space, such as our Paris Administration has already furnished to the Necker, St. Louis, and Cochin hospitals, and such as I have for several years asked for at La Charité, where the small size of the courtyards and gardens renders the plan difficult of accomplishment. And this leads me to say, in passing, to those of you who will be called some day to advise upon the construction of hospitals, that it is necessary above all things to have open spaces large enough to contain, under conditions of proper aeration, warmed tents or huts for patients whom you know to be threatened with acute putrefaction and all its consequences.

Of course, if the patient is in a private house every effort should be made to give him a large room facing to the east or south, with at least one large window, and, if the season is suitable, an open fire heating sufficiently to allow the windows to be opened occasionally without chilling the room.

If the topographical conditions of the hospital or of the home do not allow these indications to be properly and permanently met, you must try to do it temporarily at least by carrying the patient from one place to another. At the St. Louis and Lariboisière hospitals in Paris, for example, I have seen patients suffering from serious wounds and amputations placed in tents during the day and brought back to the wards at night. In case there are no courtyards or gardens, the balconies can be made use of in the same way, as they are large enough to hold several beds, and allow the patients to be brought into the open air, when the weather is suitable, without the inconveniences incidental to carrying them. Balconies, however, are lacking in most of our hospitals. They are an improvement which you may find it well to remember.

In private practice, if there is no courtyard or garden to which the patient can be taken during the day, if moreover the season is not suitable, or if it is too cold for the windows to be opened long enough to effect a renewal of the air, the patient should at least be moved from one room to another in his bed, as I advise and practise in the treatment of erysipelas.[1] When the change has been made, the windows of the room which the patient has just quitted are left open for three or four hours, and then the fire is lighted and the room warmed before he is brought back.

But if the conditions are such that the patient can be isolated neither permanently nor temporarily, if his room cannot be changed, and if, as is too often the case in our hospitals, he has to remain constantly in a more or less crowded ward, our only resource is to secure the renewal of the air, as far as it is possible, by keeping the windows open whenever the weather permits. When the weather is warm the problem is solved easily enough, but when it is cold it is much more difficult and we have to contend against all sorts of opposition. A draught of fresh air is often disagreeable, the patients, the orderlies, the nurses themselves are slightly incommoded by it, infer that it is dangerous, and hasten to close the window. In this respect La Pitié Hospital was better than the others in which I have served. One of the windows in the male ward was so arranged that it could be left open all day and often part of the night without troubling any one. The nurses and servants were not disobedient, and I obtained very good results, better than I obtained elsewhere, which I mentioned in my paper read before the Medical Congress of 1867.

Apropos of ventilation, you often hear managers and architects praise artificial ventilators, like those which have been constructed at Beaujon and Lariboisière hospitals, into the details of which it would be useless to enter here. The principle of these systems is very good, for its object is to renew the air without chilling the room. But the results obtained in the surgical and lying-in wards of these two hospitals have proved that they are not sufficient to prevent traumatic poisoning. It may be that, well arranged as they are, these ventilators renew the air only very imperfectly. They establish only very narrow and limited currents instead of the broad ones produced by open windows and fireplaces that draw properly. And then these apparatuses rarely work well. They depend upon a fire which has to be fed constantly, and which, either by negligence or lack of fuel or for any other cause, is allowed to go out. Then the ventilation stops. I am far from proscribing ventilators absolutely; but I consider them insufficient for the object which we now seek, and their use, though it may be advantageous for the mass of patients, does not relieve us from the necessity of using for those now under consideration the measures of isolation and aeration which I have mentioned.

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[1] Article Erysipèle in the Dictionnaire de Médecine et de Chirurgie Pratiques, Paris, 1871, tome xiv. p. 1.

Dressings.—Surgeons have always sought, but especially during the last sixty years, for modes of dressing large wounds which would protect their patients from the complications which now occupy us.

The ideas which guided them varied, and were gradually modified by those which were advanced as to the origin of these complications. Not wishing to speak of all kinds of dressings I shall mention only those whose principal aim has been to prevent traumatic fever and purulent infection, and I shall try to show how their mode of action accords with the pathogeny I expounded before you. From this standpoint I shall examine successively: *uniting dressings*, *infrequent dressings*, *dressings by aspiration or pneumatic occlusion*, *occlusive dressings*, *disinfecting dressings*, and finally *daily*, *simple*, *and painless dressings*.

Uniting dressings.—By this name I designate those which keep the edges of the wound near together and, so far as possible, in contact for five or six days by means of strips of diachylon plaster, or of linen dipped in collodion, or of interrupted or quilled sutures. Their object is to obtain what is called *immediate union*, that is, cicatrization of the solution of continuity without suppuration and by prompt transformation into cicatricial tissue of the plastic lymph or blastema which is poured out after the first twenty-four hours on the surface and between the lips of the wound. You see at once how, so far as putrefaction and septicæmia are concerned, this kind of dressing would act. It would prevent suppurative inflammation, and with it the whole train of local symptoms, at the head of which we placed the formation of eschars and the decomposition in contact with the air of all the organic parts deprived of vitality.

Nothing could be better than such a result; but can it be easily obtained? is it often obtained in practice? and, in case of failure, have the measures taken to procure it any disadvantages?

Notice first, gentlemen, that immediate union is impossible in many cases: in those, for example, in which the integuments have suffered a loss of substance; in those in which although there has been no loss of substance the edges are so widely separated that they cannot be brought together; and finally in those of contused and gunshot wounds with such bruising of the edges that mortification and suppuration must take place. We can examine it then with reference only to those cases in which it is possible, and that is mainly those in which amputation has been performed.

As for those, I do not hesitate to tell you that immediate cicatrization is very rarely obtained. I have seen it, and so have other surgeons, succeed in children, in whom, moreover, the attempt if unsuccessful has not the disadvantages of which I shall presently speak. But I have seen it succeed very rarely in adults, and all my colleagues at Paris have had the same experience. A few years ago I heard it said, and I have also read in Serré's *Traité de la Réunion Immédiate*,[1] that they succeeded more often in the south of France, and especially at Montpellier. But I doubt if this assertion has been justified by a sufficient number of facts, for now I hear the contrary asserted, that attempts to obtain immediate union upon adults have no greater success in the south than in the centre and north of France.

I believe myself then justified in saying that in the immense majority of cases suppuration is not prevented by this mode of treatment, and that in your practice hereafter you should use it only if the experience of your predecessors and yourselves has shown that the locality where you practice is exceptional in this respect, and that in it wounds, when their edges are brought together, generally heal without suppurating.

Understand, too, how difficult it is to obtain completely the result sought for by dressings of this kind. In an amputation wound you have to distinguish two things, the integumental edge and the bottom of the wound. The edges are easily kept in contact by the means of reunion, and have a simple structure which allows prompt agglutination without suppuration. But the bottom, that part composed of muscles, tendons, aponeuroses, and bones, cannot be brought together so exactly.

Even when a flap amputation has been made, there are always irregularities of the surface which do not allow all the points to be brought, and especially to be kept, together; how then can we hope that all these parts differing in vitality will be simultaneously protected from that which always threatens in the first period of exposed wounds, that is, the mortification of some of the tissues over which the knife has passed. However perfect may be the coaptation of the edges, is there not reason to fear that a little air may have been imprisoned at the bottom of this wound, and that the blood and the lymph, when poured out, will be subjected to its decomposing influence? Clinical observation, gentlemen, has shown these objections to be well taken. At the beginning of my surgical career I tried, and saw others try, to get immediate union; this was in consequence of what Prof. Ph. J. Roux[2] had told us of the habitual and even exaggerated use of this practice in the English hospitals, and of the views which John Bell's[3] and Richerand's[4] works had popularized among us; and yet I never saw perfect immediate union without any suppuration; that is, in the very exceptional cases in which I got good results, and in the two children upon whom I had to amputate at the thigh, there was suppuration at the surface of the wound, the edges of which had not united immediately, and a little deep suppuration along the ligatures which reached from the bottom of the wound to the surface. This suppuration, however, ceased as soon as the ligatures came away.

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[1] Serre, of Montpellier, Traité de la Réunion Immédiate, Paris, 1837.
[2] Roux, Relation d'un Voyage fait à Londres en 1814, Paris, 1815, p. 117.
[3] John Bell, Traité des Plaies, Paris, 1825.
[4] Richerand, Nosographie et Thérapeutique Chirurgicales, Paris, 1821.

The best that I saw and obtained, then, was not a complete avoidance of suppuration, but its absence from the bottom of the wound, especially about the bone, and with this so limited suppurative inflammation, the absence of the febrile phenomena engendered by acute suppurative osteomyelitis.

This result, rarely obtained as it may be, is so favourable that we should have to continue to employ this mode of dressing if it were not for its disadvantages, which are real and serious when it fails. Immediate union of a part of the edge, or, if you prefer, of the superficial portions of the wound, takes place. But the deep parts remain separated, the effused blood and serosity have prevented permanent contact. Air has been inclosed when the dressing was applied, or enters at those points on the surface where union has failed. In short, the blood and the liquids decompose and stagnate in the wound. Their retention causes a painful distension, increases the intensity of the inflammation, causes it to take on the gangrenous form, and exposes necessarily to absorption of deleterious substances.

For these reasons immediate union, although excellent in principle, is not now practised; and I repeat that you should have recourse to it only for children and small wounds in adults. Do not use it for the large wounds of adults unless you are practising in a country where wounds rarely take on gangrenous and septicæmic inflammation.

Infrequent dressings.—Under this name we class dressings with which, while seeking, if possible, the same end as with the former, we expect to have suppuration, but we try to avoid the consequences of the inflammation which precedes and produces it by protecting it from contact with the air, and by prolonged rest of the limb.

You will find quoted as being the first, or one of the first, to recommend infrequent dressings, a writer of the seventeenth century, Cæsar Magatus, an Italian surgeon who managed to write a very large folio volume upon this subject.[1] This author objected to the practice of repeatedly forcing into the wounds tents of charpie, covered with drugs supposed to favour suppuration, growth of the flesh, and drying of the wound, and which they changed according to the stage reached by the wound. Magatus also insisted upon the following points:—that in a dressing we must avoid: 1st, The contact of the air, because it irritates the wound; 2d, Movements, because they interfere with agglutination; 3d, The removal of the pus, which, according to him, is a topic which favours repair. With this object in view he recommended that dressings should be simple and rarely renewed—every three, four, or five days. You know, and I shall speak of it presently, that we go further than that, for you have seen me leave the first dressing of an amputated limb untouched until the twenty-second day.

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[1] Magatus, De rarâ medicatione vulnerum, seu vulneribus rarò tractandis, Venitiis, 1616.

We must suppose that Magatus's practices and precepts remained unknown to the French surgeons, or that they were forgotten, or that if followed they did not give good results; for when Belloste published his work at the end of the seventeenth and beginning of the eighteenth century[1] he again protested against the practice which still existed in his time, of uncovering wounds twice each day; and in a chapter entitled, *Why wounds should be dressed infrequently*, he advised that dressings should be renewed only every two or three days. "Repose," he says, "is necessary for all growths. The nitrous parts of the air alter the natural balm or nutrient juice which is intended to act as a glue to reunite the divided parts."

Afterwards, when the precepts of the English surgeons concerning immediate union had been formulated conformably to Hunter's ideas of adhesive inflammation and suppurative inflammation, all those who adopted this plan of dressing followed the recommendations of Magatus and Belloste, for the first part of the treatment at least, and left the first dressing in place for four days. Then J. D. Larrey[2] called for seven, eight, or nine days, and Josse of Amiens[3] advised that the first dressing should be removed on the tenth day, and the subsequent ones only every two or three days.

Up to this time, you see, they hardly went beyond the tenth day. Maréchal, in the cases of amputation of the forearm reported by Sazie,[4] went twelve days. But at the present time, as I have already told you, M. Alphonse Guérin, taking up again this method which hitherto had not yielded results good enough to attract surgeons very strongly, based his action upon the pathogenic theory that purulent infection is due to absorption by the wound of miasms carried by the air. The conclusion was simple. Wounds must be protected from this contact by more suitable apparatuses, and this protection must be provided especially during the first twenty or twenty-five days—that is, for the period during which septicæmia is most to be feared. Indeed, after its second application, the apparatus should again be left in place for about the same length of time; and thus the infrequent dressing should be continued until the end, or near the end of cicatrization.

M. Alphonse Guérin might have used the apparatuses invented by Jules Guérin and Maisonneuve, of which I shall presently speak; but in the first place he wished to avoid the complications of this special arrangement; and, secondly, he wished to add a certain amount of compression to the proposed occlusion, and he justly sought to use common materials, which the surgeon would readily find everywhere. His idea then was to use cotton batting, and to dress amputated limbs with cotton apparatuses, making elastic compression similar to those used by Burggræve[5] in the treatment of white swelling, so that his infrequent dressing is at the same time a cotton occlusive one. To make it, the author, who published his method in June, 1871, covers the wound and the limb for a long distance above when it is a stump —above and below when it is a wound without amputation—with a layer at least five inches thick of cotton batting. Over this he rolls a band very tightly, pressure through the cotton never being sufficient to arrest the circulation, or even to cause pain. In case of an amputation he carefully carries the turns of the band over the end of the stump so as to entirely cover the wadding applied over the wound. When the wound occupies the thigh or arm he carries the dressing as high as the upper end of the limb, or even upon the trunk; and when the injury is of the leg or forearm the cotton is applied at least as high as the middle of the thigh or arm.

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[1] Belloste, Chirurgien d'Hôpital, Paris, 1696; another edition, 1708.

[2] Larrey, Clinique Chirurgicale, tome i.

[3] Josse, Mélanges de Chirurgie, 1835.

[4] Sazie, Mémoire sur la Réunion Immédiate et la levée tardive du premier appareil des plaies qui succèdent aux grandes opérations. (Archives Générales de Médecine, 2d série, tome ii. p. 153.)

[5] Burggræve, Les Appareils Ouatés, Paris, 1859.

By the application of this apparatus M. Alphonse Guérin[1] expects to accomplish two objects—that of preventing air from reaching the wound by means of the occlusion, which seems as if it ought to be complete, and that of exerting compression along the whole length of the limb. At the same time that it may diminish the inflammatory swelling, and perhaps favourably modify the phlegmasia, this compression undoubtedly interferes with the circulation in the lymphatics and superficial veins to such an extent that transport of septic materials is at least diminished, if not entirely prevented. M. Guérin, as I have already told you, leaves this dressing in place for from twenty to twenty-two days. He modifies it sometimes on the second or third day by adding another band if the first seems to be loose, or if it has become soaked with offensive liquids.

Gentlemen, this kind of dressing is still too recent for us to pass final judgment upon it. I do not wish to speak again of its theoretical basis; we could not admit that absorption of atmospherical miasms was the exclusive cause of surgical poisonings. But what of that? We do admit that the presence of air is objectionable, and that it is well to shut it off from the wound. Does M. Guérin's apparatus accomplish this object, and if so, does that suffice to sensibly diminish the chances of septicæmia?

I believe that it does shut the air out entirely, and I base this belief upon two reasons: it seems to me impossible that the air could penetrate this thick layer of cotton and the band about it, and when it is carefully applied as high up as I said, the cotton is pressed so tightly against the skin that the entrance of air at the upper edge of the dressing seems to me to be equally impossible. Secondly, I was present at the removal of the first dressing from two of M. Guérin's patients, and I have myself removed it on the 21st or 22d day from seven patients whose limbs I had amputated. I was struck in all these cases by the thickness and creamy appearance of the pus, the rosy colour of the wound, and the absence of fetidness. Certainly if the air had penetrated to it the pus would have been altered; it would have become fetid and ammoniacal, and the wound would have assumed an unhealthy look. I consider the fact, then, as settled beyond question—M. Guérin's dressing prevents the approach of air to the wound.

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[1] Alphonse Guérin, Discussion sur l'Infection Purulente. (Bull. de l'Acad. de Méd. 1871, tome xxxvi. p. 328.)

But is that sufficient to prevent occurrence of traumatic fever or pyæmia? To this I cannot reply so categorically; for while M. Alphonse Guérin, as I myself saw, had a very remarkable series of cures, I have not always been so fortunate.

Of my first series of six amputations on account of wounds received, only one patient survived. That was a young officer whose forearm I amputated near its middle, at the Rothschild Hospital, the twenty-fifth day after gunshot fracture of the carpal and radio carpal articulations, with burrowing of pus within the sheath of the flexors, and continuous fever which seemed to be leading to pyæmia. I performed then a consecutive amputation during prolonged traumatic fever, and as I found altered pus and a few eschars in the spongy tissue of the lower ends of the radius and ulna, as, in short, there were signs of putrid osteo-myelitis, I feared that purulent infection might already have begun without having as yet manifested itself by chills. Happily this fear was not realized. The fever did not increase after the operation. It even diminished little by little. The patient suffered more pain in his stump than the others did; he was first carried into the garden on the twelfth day. When we removed the dressing at the end of the twenty-first day we found the wound very rosy, covered with a thick layer of creamy, inodorous pus, which had also soaked into the superficial layers of the cotton; the bones were covered with granulations, the concomitant erythema was not very marked. After having cleaned the limb well, I applied another similar dressing, which was equally well borne for twenty days. At the end of that time the wound, still rosy and covered with laudable pus, had diminished to one quarter its original size. I applied a simple dressing of cerate, and a fortnight afterwards cicatrization was complete.

The five other patients whose limbs, an arm, forearm, two thighs, and a leg, had been amputated in June, July, and August, 1871, died.

But of this I have two explanations to offer. First, in four of these cases the operation was a consecutive traumatic amputation, and performed a little late, from the twenty-fifth to the thirtieth day after the wound was received. The fifth patient, whose forearm was amputated, was operated upon rather earlier, but under particularly serious circumstances. His right hand had been crushed in a printing machine. The injuries were such that a cure was still possible, and I had, therefore, tried to save the hand. But on the fourth day there appeared one of those sudden, rapid gangrenes which promptly invade all the tissues and are accompanied by an intense fever, another variety of septicæmia by absorption of the putrid substances which are formed in the neighbourhood of living parts before the vessels have had time to become obliterated. It is rarely, no matter what you may do, that death fails to follow this gangrenous septicæmia. Nevertheless, as only twenty-four hours had elapsed since the gangrene began, and in spite of the high fever (pulse 130, temperature 103°), I considered it my duty to propose amputation, and it was accepted. The fever of infection continued, and, as so often happens after intense and prolonged traumatic fever, a violent chill, the sign of pyæmia, occurred on the sixth or seventh day after the amputation; others followed, and the patient died before the cotton dressing had been renewed.

One of the four others had undergone rather late amputation of the thigh for a gunshot wound, involving the synovial membrane of the knee, and followed by suppurative arthritis with rupture of the upper cul-de-sac and effusion of the pus into the deep cellular tissue of the thigh between the femur and the quadriceps. I had proposed amputation on the eighth day, as soon as I had detected the formation and spread of the deep phlegmon in the thigh with very marked febrile movement. The patient had obstinately refused; but about the twentieth day, when the free suppuration of the knee and thigh had exhausted him, when eschars had formed over the sacrum, when the traumatic fever of the beginning had been transformed without interruption into an intense hectic fever, he begged earnestly for the operation, which then offered very slight chances of success. I did it, nevertheless; but the hecticity continued, and the patient succumbed a fortnight afterwards.

Finally, in the other three patients suffering from gunshot wounds, whose limbs I had not amputated at the beginning because I had reason to expect recovery with preservation of them, and because our primitive and consecutive amputations had yielded only failures here at La Charité, an initial chill, apparently indicating pyæmia, had occurred. But this chill had not been seen by the medical attendants, it was rather vaguely described by the nurse and the orderlies, and as there were some doubts of it, and as, furthermore, the local and general symptoms showed that life was in danger, I amputated and applied the cotton dressing. But the chills promptly recurred and purulent infection showed itself distinctly in all three. Death took place a few days after the operation, and at the autopsies we found metastatic abscesses in the liver and lungs.

I am convinced that in these five patients the conditions were unfavourable, and that consequently their death does not justify a judgment unfavourable to the dressing employed. It is evident that no kind of treatment, however well devised it may be, will always preserve from death those who have undergone capital operations; and furthermore that these operations should be performed before the appearance of pyæmia, and even before traumatic fever has lasted long enough and been high enough to preface the way for pyæmia. That will always be one of the great difficulties in practice, for we constantly find ourselves between two dangers: that of performing amputation upon patients in whom traumatic fever has not appeared at all, or only very lightly, and who consequently, if well cared for, are more likely to recover, but of whom a large number might also recover without amputation; and that of waiting long enough to be sure that the limb cannot be saved, and by thus waiting to allow septicæmia to establish a hold which will compromise the success of the operation. As I have told you before, gentlemen, in dealing with this difficult subject we are surrounded by uncertainties; we must allow ourselves to be guided by presumptions drawn from the condition of the injury, the previous health of the patient, and his hygienic surroundings. But these are only presumptions, amid which, while trying to do rightly, we are never certain that we are doing what is best.

To return to the infrequent dressing, I told you that, as regards my five cases of amputation at La Charité, I had another explanation to offer.

In two of them I had the opportunity to renew the dressing once, and I showed you that, as in the cases I saw at St. Louis, and as in the one which I myself amputated at the Rothschild Hospital, the wounds on the twenty-first day looked well, the pus was not fetid, and there were no apparent eschars. At the autopsies I found diffluent pus in the spongy tissue of the bones and in the medullary canal, but it did not smell badly, and was not mixed with either blood or sloughs. There was suppurative osteo-myelitis, but it was not putrid, and I am convinced that the septicæmia of which the patient died occurred before the operation.

Besides, I have a second series of five amputations for pathological reasons: one of the thigh, three of the leg, one through the tibio-tarsal articulation; only one of them, that of the thigh, was carried off by purulent infection, the four others got well.

You saw as well as I that the application and retention of the cotton dressing were not painful, and that the principal objection to it in warm weather was that it had an offensive odour. This we found to be due to the decomposition of organic matter which made its way gradually to the outer layers of the dressing, where it became exposed to the air. But this decomposition did not extend to the deep layers, that is, to the neighbourhood of the wound, where the arrival of the air seemed to me to be impossible. There is one other objection, the moist erythema which is often found extending to a certain distance about the wound, and which is due to the prolonged contact of the pus with the skin. This is a very slight objection, it can be easily overcome by means of starch powder, and has no unpleasant consequences.

In short, gentlemen, notwithstanding the failures of which I have spoken, the results of this infrequent dressing, as I have observed them both upon M. Guérin's patients and my own, justify me in saying to you that it meets more satisfactorily and simply than any other the indication of withdrawing wounds from contact with the air, that it also removes one of the causes of the putrid decomposition which engenders septicæmia, and for these reasons it ought to be employed.

Does this mean that of itself alone it will preserve many patients from grave traumatic fever and purulent infection?

I do not dare to believe so; for, as I have previously told you, the pathogenic problem is so complex that the removal of one of its causes cannot lead to a clinical solution which would amount to absolute preservation. I told you how much influence must be attributed to hygienic and individual conditions; I believe to-day that if patients with wounds (surgical or accidental) dressed as I have described, remained in crowded and badly ventilated wards, many of them would still have putrid osteo-myelitis to a degree sufficient to lead to purulent infection. I also believe that this dressing cannot prevent the consequences of previous alcoholism and of unfavourable moral impressions, such as those which follow in most cases of traumatic amputation from the loss of a limb.

To state it briefly, I accept M. Alphonse Guérin's dressing, but in addition I want the patients to be placed in tents, or in isolated and well-ventilated rooms.

Dressings by pneumatic occlusion and by aspiration.—Starting with the idea that decomposition of the pus and other liquids of the wound by the air is the main cause of the toxic complications, M. Jules Guérin likewise thought that the main prophylactic indication was to protect the wounds from contact with the air. With that view he incloses the part in an impermeable sleeve, to which is attached a tube communicating with an aspirating pump which does the work of a pneumatic apparatus. By means of this a vacuum is procured within the sleeve, and the wound is withdrawn from contact with and from the influence of the air. By this method, to which he has given the name of *pneumatic occlusion*, M. Jules Guérin hopes to prevent not only putrefaction but suppuration also, and to obtain what he calls immediate organization, that is, repair without suppuration, similar to that which takes place in solutions of continuity without open wound or with the small ones of the subcutaneous method.

M. Maisonneuve at about the same time made use of a similar apparatus. He did not think of preventing suppuration, and he announced a different intention, that of removing by aspiration all the liquids and even the gases which are found upon the solution of continuity, and thus avoiding the consequences of the absorption which would doubtless take place if these same liquids should remain upon the wound. To obtain this result M. Maisonneuve recommended that the aspiration should be repeated eight or ten times each day, and that from time to time a little water or carbolic solution should be injected, and then removed by the same means.

These two authors have repeatedly published their methods, but not the exact proportion of successes obtained in cases of the kind in which prophylaxis is most necessary, those in which the patients are liable to have acute suppurating osteo-myelitis, and above all they have not told what this proportion was in cases which, while being treated in this way, were obliged to remain in the more or less vitiated air of a hospital ward.

This absence of statistics and the complicated nature of the apparatuses have prevented other surgeons from adopting this method. As for myself, I waited for the publication of favourable results, and this publication not having come I have done nothing about it. Besides, I had other reasons for not using it. . It always seemed to me that in order to procure an absolute vacuum about a wound we should have to make very tight constriction over a certain extent of surface, and that this would cause great pain, and perhaps gangrene of the skin. Now, I feared lest these complications, especially the pain, might compensate for the advantages of the vacuum, and add a new cause of poisoning to those which already existed. I said to myself that, if Jules Guérin's and Maisonneuve's patients did not suffer, it was probably because the compression was not very tight, in which case the air would enter between the skin and the apparatus, and thus the intention would not be realized. Let us withhold our final judgment until a sufficient number of successes to compel conviction have been published. While waiting for these let us use M. Alph. Guérin's infrequent dressing if we wish to withdraw our wounds from contact with the air. It seems to me to meet the same indication by much more simple means; and let us not forget that, whatever mode of occlusion is employed, we must still protect the patients from the consequences of vitiated air.

Disinfecting dressings.—If, for one reason or another, the previously mentioned dressings should not be accepted, we could return to an idea which has preoccupied surgeons for a score of years, that of dressing large wounds which expose to traumatic poisoning with substances which have, or are supposed to have, the property of destroying the miasms or toxic principles produced by the decomposition of organic liquids.

I told you in another connection that chlorine water, alcohol, permanganate of potash, and a solution of 1 or 2 per mille of carbolic acid had been employed for this purpose. You have often seen me use a mixture of equal parts of alcohol and a solution of carbolic acid of the strength of one part of the acid to three hundred of water.

I think I may assure you that experience has not shown the efficacy of these different agents, at least from the stand-point which we now occupy. I do not deny that they have a certain value in superficial wounds, or in the superficial part of deep ones, either by retarding the establishment and diminishing the abundance of suppuration, as alcohol certainly does, or by exciting the surface of the wound and provoking the formation of granulations, as Labarraque's chloride of soda does, or by destroying certain of the miasms, although this is not so clearly demonstrated as some seem to believe. But what has never been proved, and what I doubt, is that these agents have the power of preventing eschars and putrefaction in the deep parts of compound fractures, and especially in the cavities and cells of the bones. I admit that they modify the secretion, and, up to a certain point, the alteration of the liquids, but for the present I deny that they prevent the formation of eschars and putrid matter, and the consequences of the contact of air with the mortified parts; and I formulate my opinion clearly as to the use of these different topics in telling you that they have the power of accelerating or retarding cicatrization, but they cannot prevent death by traumatic fever or purulent infection.

You have recently heard recommended a mode of dressing, the value of which is supposed to .be due to the disinfecting action of carbolic acid used in a certain way, and in stronger doses than formerly. It is the one called *Lister's dressing*, from the name of the English surgeon who recommended it. It is arranged in the following way: the

LECTURES ON FEVER:

incomplete

DELIVERED IN THE THEATRE OF THE MEATH HOSPITAL
AND COUNTY OF DUBLIN INFIRMARY.

disregard
this.

BY

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PHILADELPHIA:
HENRY C. LEA.
1876.

THE FOLLOWING PAGES

Are Dedicated to

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REGIUS PROFESSOR OF MEDICINE IN THE UNIVERSITY OF OXFORD;
HONORARY PHYSICIAN TO H.R.H. THE PRINCE OF WALES.

WHOSE ENLIGHTENED EFFORTS TO SHOW THE RELATIONS OF CURATIVE AND
PREVENTIVE MEDICINE TO THE HIGHEST INTERESTS OF
MAN HAVE EARNED FOR HIM THE GRATITUDE
OF ALL HIS FELLOW-WORKERS.

PREFACE.

It seems fitting I should mention that the following Lectures, the delivery of which has been spread over a considerable period of time, were not given in any regular sequence, so as to form a continued or systematic course. On the contrary, most of them were delivered at irregular intervals, and all as extemporary discourses. In one remarkable instance, this has led to the repetition of a very peculiar case of internal abscess in convalescence from Fever with icterus. As stated in the text, I was at first inclined to regard the liver as the primary seat of the abscess; but at page 149 I have given reasons for concluding that the lesion was originally in the spleen. Several years intervened between the delivery of the first, and that of the second, lecture in which the case is mentioned.

The place in which I spoke should be remembered—namely, the theatre of a General Hospital, containing, indeed, separate fever wards, but also wards for the treatment of cases other than those of essential disease. And so, with the view of publication, it became necessary to employ a good deal of selection as to the subject-matter of each lecture. Some of them, so far back as the year 1854, were edited by my friend and former pupil Dr. Lyons, and appeared in the *Medical Times and Gazette* under the head of "Clinical Lectures on Fever."

Since that time, I need not say, the study and the teaching of Fever have been continued in the Meath Hospital, with at least one important result—namely, the valuable and original work of my trusted friend and late colleague Dr. Hudson, a work worthy to follow that of Dr. Graves for its learning, judgment, and practical worth.

It appeared to me that lectures addressed to successive classes of clinical students, and grounded on constantly renewed observations in the sick ward throughout many years, would have a value different in kind from, if not superior to, any exhaustive history of fever, especially as regards the various theories of the disease or the observations made by others.

I have ever believed that the great object of a clinical instructor is twofold—first, that he should teach rather by example than by precept; and, secondly, that he should act more as a fellow-student than as a master. In this way the members of his class, associated with him in investigation, will learn as much or more by his example as they would by his precepts. They will taste the pleasure of original work and the value of self-instruction, and perceive that their great object is less to be taught by another than, in following his steps, to learn to teach themselves. This shows the superiority of clinical over systematic teaching in medicine. The former admits of immediate demonstration; and, from the ever-varying combinations and characters of essential disease, no one lecture can, as it were, repeat another.

But while his discourses must vary from time to time, according as they may deal with the infinitely varied complications of local secondary disease, or in relation to the "epidemic character" of the essential or general malady, the duty of the teacher should ever be to imbue the minds of his hearers with the state of his own convictions on the subject in general. Thus he will furnish them with a knowledge less of particulars or of theories than of those broad principles which in after-life will guide them in dealing with disease.

In the following Lectures I have considered in some measure the question of the separate identity of typhus and typhoid fevers, but I have not entered into it as fully as the labours of other observers in various countries might have encouraged me to do. I have preferred to dwell on the great subject of the relation of the secondary affections of fever to the essential malady, and in the light of that relation to discuss the question of treatment.

No one can deny that a normal case of typhus will show striking differences from a normal example of typhoid; yet that these differences belong rather to species than to genera, and that the principles of treatment of the two affections are the same, must, as it appears to me, be admitted. In fact, the study of the points of agreement between the two forms of Continued Fever under discussion will be more valuable than that of their differences.

They are both essential affections, in which the local anatomical changes are secondary to, or resulting from, the fever.

They are both subject, although in varying degrees and at different times, to the Law of Periodicity.

The characters of the constitutional and local symptoms in both vary as to intensity, amount, seat, combination, period of appearance and of cessation, and effect upon the primary disease.

In both, the local symptoms may be only functional, or more or less connected with anatomical change.

In both, local change may interfere with the law of periodicity, or even be attended by cessation of the constitutional symptoms. This has been observed more frequently in typhus than in typhoid.

In both, the action of the law of periodicity applies not only to the general condition, but also to the secondary affections.

In both, the local or secondary malady may take on a consequent condition of reactive irritation, thus adding a symptomatic to the primary fever.

The essential and local characters of both vary with the "epidemic constitution" of the time being.

The symptoms of local disturbance, which are reliable as a guide to diagnosis where essential disease does not exist, in a great measure lose their significance in the presence of both forms of Continued Fever.

In both, any or all of the functions may be disturbed singly, collectively, or successively, with or without corresponding anatomical change.

In both, deposits of tubercular matter may occur as a secondary local affection.

Similar exciting causes seem occasionally capable of giving rise to either form of fever.

In "relapse cases"—I do not mean cases of Relapsing Fever—the character of the second attack may differ widely from that of the first. Thus typhus may give place to typhoid, or *vice versâ.*

The petechial or the measly eruption of typhus may coexist with the rose-spots of typhoid.

Both forms are contagious, although in different degrees.

As I have said, the principles of treatment in both are the same.

These Lectures do not pretend to give even a sketch of all that is known or believed to be known respecting Fever. Nothing will be found in them relating to histological research, the chemico-vital states of the fluids or organs, or the analysis of the laws of crisis. The wide questions of the correlation or convertibility of essential disease are barely touched upon. Some of the facts connected with the change of type of disease, especially as regards the local affections of essential maladies, are mentioned. I have also spoken of the shortcomings of the numerical system in medicine, of which Professor Trousseau, in the introduction to his immortal work,[1] writes as follows:—

"Si la statistique appliquée à la médecine n'élevait pas trop haut ses prétentions, si elle se considérait non comme la clef de voûte de toute science, mais comme un procédé un peu moins imparfait que la plupart de ceux que l'on suivait jusqu'ici, je ne songerais qu'à la louer, qu'à la présenter à votre choix, parce que réellement je la crois utile; mais elle fait tant de bruit pour de si pauvres résultats, qu'on ne peut, en conscience, l'aider à tromper la jeunesse par une sorte de charlatanisme d'exactitude et de vérité."

The difficulties attending the application of the numerical system are nowhere greater than in the study of essential fever, because of the ever-changing nature of the epidemic type of the disease and of its secondary local affections.

I cannot close this Preface without expressing my deep sense of obligation to my distinguished colleague Dr. Arthur Wynne Foot for a valuable record of temperatures in Fever, collected for the most part under his personal supervision in the wards of the Meath Hospital during the last three years.

[1] Clinique médicale de l'Hôtel-Dieu de Paris, deuxième édition, tome 1er, Introduction, p. xliv.

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Following the consideration of food in fever we shall next take up that of diffusible stimulants. Their employment we have had together a full opportunity of studying, and those of you who are practising pupils have learned to prove their value and importance in every form of fever. You have learned also to avoid routinism, and you well know that when we speak of every form of fever we do not mean every case of the disease. We have had cases in which no wine was used, in which it was sparingly employed, where it was not used until after the middle period of the fever. In many cases, too, you had to use it and other stimulants with great boldness and for many days, beginning at an early stage of the disease. Again, wine had sometimes to be omitted, though the disease still was running on; and, lastly, its exhibition or its withdrawal had to be alternated several times in the course of the disease.

Many of you have also learned that in fever the common error of delaying the giving of stimulants to a very late period of the case is a practice fraught with mischief, attributable to the prevalence of the doctrine that fever and all its local symptoms were induced by inflammation. By this system all the good of the anticipative use of stimulants is lost.

Any unbiassed observer of fever will admit that between the condition of vital prostration and what is termed "waste of animal tissue" there is no constant relation. We cannot deny the occurrence of metamorphosis of tissue and waste of organic substance as incidental to fever; on the contrary, we believe that these phenomena are remarkably perceptible. But we must also hold that there is a prostration of vital energy—a thing *per se*, which is totally unconnected with loss of organic substance. Do not for a moment forget this—that the forms of disease in which we find the greatest prostration of vital power are those wherein we discover least signs of organic mischief. A striking example of this is found in cholera, and in the various forms of continued fever.

Now, I must tell you that the views of my lamented friend Dr. Todd are to be received with caution. One thing is certain—that whether we look on wine and brandy as food or simply as stimulants, the great point is to know when and how to administer them beneficially. We have not indeed attempted to decide the question experimentally as to whether stimulants act as food by repairing the wasted tissues, for in all our cases food and stimulants were given together—our object being rather to save life than to settle an abstract physiological question; and many of you had cases of weakened heart in fever where the influence of stimulants was too rapid to be accounted for except on the principle of a direct action on the nervous system.

It is true that we have seen life prolonged for several weeks by stimulants alone. Some years ago a patient in one of the small wards had long used a fabulous amount of spirits. He lived on brandy or whiskey for a month, during which time he swallowed nothing else, and cost the hospital a good deal more than his life was probably worth.

If Dr. Todd's views were to be carried out in every case of disease, essential or otherwise; if, in short, we were to administer stimulants on the *routine* principle—regarding them as nutrient substances, calculated to supply the waste of animal tissue, and as it were rebuilding the organic structure, we should find ourselves lamentably disappointed. The adoption of such a system found very few supporters among experienced physicians.

But let us do justice to Dr. Todd's memory. As practical men, in the present state of our knowledge, we have little to do with questions of physiology, and to him belongs the merit of showing that the use of alcohol may be resorted to or at least borne in states of disease where it was held to be dangerous. He has still further shown the error of the anatomical school, which referred everything in acute disease to inflammation; and though he may have fallen into a routine practice, we should be slow in holding him answerable for the errors of some of his followers.

Even in many essential diseases you will find that stimulants are contra-indicated or badly borne. I do not say that in such, an opposite mode of treatment will succeed, but there are many cases of essential disease—of puerperal fever, pyæmia, malignant scarlatina, small-pox, and others—in which, though the vital strength is fearfully prostrated, for some reason which we cannot explain stimulants are too often powerless for good. There can be no doubt that the efficacy of stimulation is closely connected with the prevailing epidemic character of disease, and thus it was observed in our late visitation of small-pox that wine and brandy were often productive of good effects. But still the proposition is true that stimulants in the class of diseases I have mentioned are not followed by the same happy and almost heroic effects which we so often witness in typhus fever.

We may dwell upon the question of the use of stimulants in fever as regards, first, the anticipative treatment, and next the treatment urgently called for by the circumstances of the case. By the term *anticipative treatment* you are to understand the administration of stimulants at an early stage of fever, when, although there may be no very pressing vital symptoms calling for their use, the sagacity of the physician enables him to foretell the occurrence of great prostration of vital energy. Under such circumstances he gives stimulants *by anticipation.*

In comparing the relative value of these two modes of proceeding, I am of opinion that the anticipative method is that which will tend most to the saving of human life. In adopting this line of practice the physician does not wait until the patient has been labouring for many days under the exhausting influence of the disease. He does not withhold the needful aid until the 10th or 12th day, when the prostration of vital energy has assumed a formidable aspect, when the prompt use of stimulants is suggested by common sense, and when often, unfortunately, the system is incapable of responding to the remedy. For you will learn that where the powers of life have remained long without support, a downward process may commence from which no effort can rescue the sufferer.

In the anticipative treatment we follow the old maxim, "venienti occurrite morbo," and he who knows when to adopt it has gained a high place in practical medicine.

In determining on the employment or the contrary of the anticipative treatment, the following considerations must be present to you

First, the epidemic character or habit of the disease; secondly, the previous condition of the patient.

What we have to guard against is a sudden sinking of the vital energy, shown by special conditions of the nervous and the circulatory systems. I have told you, that, with respect to these and the other systems in fever where the strength has been unsupported, the downward tendency goes on until a point is reached from which there is no revival. In these cases there is between the heart and the nervous centres a great sympathy, and the condition of the one—which is revealed by manifest physical signs, and with which you are all now familiar—gives you a clear conception of the state of the brain and the spinal marrow.

This failure of the heart, like the other secondary affections, is under the law of periodicity, yet I believe it may occur in chronic cases, but with this difference—that having become established it continues until the end. A gentleman of energetic and industrious habits, who lived well and took his bottle of wine daily, and who never showed any disease of the heart, became subject to attacks of ordinary gout. He was persuaded to undergo a protracted course of hydropathy, during which the candle was burned at both ends, for no wine or stimulant was allowed for more than a month. His condition was remarkable; he had no pains, no fever, the pulse was about sixty, weak but regular, and when asked to describe his symptoms he said, "I have no complaint to make, but of a strange weakness of body and mind which is quite new to me." He lived for several weeks, the failure of the heart increasing every day, while no amount of stimulation had any effect in restoring its vigour, and he died without any ascertainable cause beyond mere nervous exhaustion. The process of death was peculiarly slow.

This sinking of the vital power, not accounted for by any apparent loss of organic tissue, takes place in fever, and it is with a view of arresting its progress that we have recourse to the anticipative treatment. But there are various grounds for adopting this line of conduct; for example, if you know that in the epidemic, a great number of cases assume well-marked symptoms of prostration, say on the seventh, eighth, or ninth day, you will on the fourth or fifth anticipate their occurrence by commencing the use of stimulants. Even in the middle of the course of a fever case, or at any period of its progress, you will do right to guard against the occurrence of sudden prostration, which, when once it has set in, especially in mature age, may resist the most active stimulation.

But there are collateral circumstances to which you must look—such as the previous history of your patient, his habits of life, his previous health, in short, whether he brings into this contest with a formidable disease a constitution affected by previous illness, bad habits, or nervous exhaustion. You will also ascertain whether any ignorant attempts to cut short the fever had been made; the patient may have been bled for supposed inflammation, he may have had cathartics, mercury, tartar emetic, or powerful diaphoretics. In such cases you have solid reasons for adopting the anticipative method, though the patient may not as yet have fallen into a state of prostration.

The full administration of stimulants is generally called for when the patient has passed the age of eighteen or twenty. In children we are obliged to have recourse to stimulants, but we employ them in a modified manner; their energetic use is indicated principally in adults between the age of twenty-five and forty-five, and here we employ them at an early period, not so much to combat existing prostration, but to anticipate the depression of vital power which sooner or latter is almost certain to ensue.

In estimating the chances that the employment of stimulants will be followed by success, much will depend on the previous habits of the patient. We have long found that the greatest triumphs of the stimulating treatment were seen in patients of strictly temperate habits, who seem more capable in fever of bearing large quantities of stimulants without intoxication. In private practice we often find that stimulation cannot be carried on so boldly as in hospital; and this appears to be connected with the previous habits of the patient, not in the way of intemperance in the use of wine, but in that of over exercise of the brain. Men engaged in anxious callings, or in intense mental exertion, are bad subjects in fever, and bear the stimulating treatment imperfectly. Thus it is that professional men so frequently succumb—witness the frightful mortality among the medical men of Ireland in the famine fever. In many such cases, with symptoms of profound adynamia, stimulants are badly borne, and hence—when the disease, as too often happens, is of a malignant character—the patient makes but a poor fight, and adds to the list of victims who have fallen in the discharge of their duty.

For the first few days your patient may make little complaint. There are often remissions in which he declares himself much better; but if the symptoms of essential fever are gradually developing themselves, if petechial spots begin to appear, and particularly if the skin exhibits the dusky discoloration so characteristic of typhus, you may expect severity of symptoms. This discoloration appears, and after a time recedes, as the petechiæ come and vanish, and like them too is subject to the law of periodicity.

Another indication for the early exhibition of stimulants is the peculiar fever-odour sometimes present from a very early period. Benign fevers rarely are attended with this peculiar odour, which belongs to more malignant forms of disease.

You will observe that the symptoms I have particularized are more closely connected with typhus and with typhoid fever, and accordingly we find that early stimulation is much more frequently indicated in the former than in the latter; in other words, the free use of stimulants, when necessary, is called for at a later stage of the disease in typhoid than in typhus. It is right, however, for us to bear in mind that some of the cases requiring the most powerful stimulation have been of typhoid fever in its advanced and complicated condition.

It is in petechial typhus that the anticipative treatment is most frequently called for, and will be found to answer best. In typhoid fever the occurrence of prostration is commonly later observed, and is of more gradual development. As we have already seen, this form of fever is less manifestly under the law of periodicity than true typhus, and the character of its secondary affections is more variable.

Physicians have from the earliest times been in the habit of determining on the administration or withholding of stimulants in fever by the state of the pulse. But—at least in the early periods of fever—the pulse taken alone is not to be depended on. It may be, up to the fourth day, full, throbbing, and resisting, and this has often led to errors in practice of both commission and omission. I have shown you that even under these circumstances an examination of the heart may reveal the commencement of a change in the vital condition of that organ. It was this temporary excitement of the pulse that led to the practice of bleeding, and of employing other depleting measures, by which the vital power was expended at an early stage of the case, and the influence of the law of periodicity was interfered with.

This ephemeral state of arterial excitement led, on the other hand, to errors of omission. The apparently inflammatory condition caused apprehension—the existing state was alone attended to, and the probable future in the case disregarded. You will not fall into these errors. The secondary debility of the heart may have commenced at a time when this pseudo-inflammatory state still existed, while in fact the pulse continued full and bounding, and the temperature high.

Take this rule with you into practice—that in the treatment of fever, and at almost any period of fever, you are not to be guided by the pulse alone. It must be observed in relation to the action of the heart—remembering that a full and good pulse may coincide with a feebly acting heart—a heart under the influence of the fever poison, often as it were on its way to the state of softening. All this you see bears on the question of the anticipative treatment.

Now among the most reliable indications for the early use of this treatment are the physical signs of weakness of the heart.

A man, aged 30, was admitted on the sixth day of typhus fever.

He was the fifth of his family who within a short time had severe maculated typhus. The impulse of the heart was scarcely perceptible, and there was already a distinct preponderance of the second sound. On the next day the impulse was imperceptible, even when he lay on the left side. He was ordered twenty ounces of wine, a blister over the heart, and beef-tea. The following day the impulse could be felt, but the sounds resembled those of a fœtal heart. The wine was increased, and two glasses of brandy were also administered. On the 12th day the pulse had fallen to 80, and the sounds of the heart were greatly improved; on the 13th day the impulse of the heart was restored, its sounds were proportionate, and the pulse had fallen to 76. The diminution of the first sound of the heart led us to the exhibition of stimulants boldly, and at an early period of the case. On the 7th day the impulse was imperceptible, while on the 8th the first sound had disappeared; and although the other symptoms did not seem to call for active stimulation, wine was ordered in free doses from this indication alone. The symptoms of cardiac debility were observed at so early a period as the sixth day, but it is probable that the typhous affection of the heart had commenced even before admission to hospital.

So far as the heart is concerned, the following are the physical signs which seem to indicate the anticipative use of stimulants. I have put them down in their chronological order:—

(1.) Early subsidence of the first sound, observed over the left ventricle.

(2.) Diminution of the first sound over the right ventricle.

(3.) The heart acting with a single, and that the second sound.

(4.) Both sounds being audible, but their relative intensity being changed so as to represent the action of the heart of a fœtus *in utero*.

(5.) With these signs, a progressive diminution of impulse, which occasionally becomes imperceptible, even when the patient lies on the left side.

During convalescence, as we have seen, the signs of recovery of the heart are usually observed first on the right side, and afterwards over the left side.

With reference to the anticipative treatment, we have spoken principally of the results of physical examination, as indicative of the typhous weakening of the heart in the early stages of fever. I have stated, that, although in the commencement of a typhoid fever any bold exhibition of stimulants is not often called for, yet in its advanced stages we have sometimes to make free use of stimulation.

I have observed that students were occasionally under a misapprehension about the doctrines which we have long held in this hospital with respect to the condition of the heart as a guide for the use of wine. They have come to the erroneous opinion that we are to give wine only when we find the want or diminution of the first sound of the heart, and that we are not to give wine where the heart is acting well. This is a mistaken view. As to the state of the heart in connection with the effect of stimulants, we have ascertained that the efficacy of stimulants is often directly as the debility of the organ. It has also been ascertained that the power of bearing stimulants, their effect upon the nervous system, their good effects on the general condition, are directly as the weakness of the heart.

We may lay down as a rule, that there are three conditions of the heart to be looked at by the practical man in the treatment of fever.

In one, we have an excited heart—a violently excited heart all through the case; and this, although the symptoms be those of extreme adynamia, although the surface be cold, the breath cold, and the pulse so feeble that it cannot be discovered. Nay, the heart may act with great force for several days, and yet there may be no pulse at the wrist. This is one case.

In the next case, we find an exactly opposite condition, in which the systolic force of the heart is diminished. This is shown by loss of impulse, by diminution—and, in certain cases, by extinction—of the first sound of the heart, while the second remains. This is a case which calls for wine, and in which you should give it; it is a case in which, in the vast majority of instances, wine will agree with the patient.

There is a third set of cases in which the heart does not seem to be implicated at all in the course of the disease—in which, notwithstanding the existence of the most extraordinary group of symptoms affecting various organs, the heart, in the middle of the storm, seems to be in a state of calm and quiet.

If we compare these three conditions with a view to prognosis, we may arrange them in this way. The excited heart all through, with feeble pulse and with adynamia, is unquestionably the worst. There is no worse symptom in fever than an excited heart. It is especially a bad symptom when, with that excitement, we find a feeble pulse. Next will be the case of sinking of the heart; and the most favourable condition is that in which, as I said before, the heart seems to escape disease.

You are not, however, to suppose that because you have an excited heart you are not to give wine; or that, because the heart is not affected at all, you are to withhold wine if in either case the general symptoms of the patient require it. You are not to found your exhibition of wine or other stimulants upon any one thing; you are to take the general state of the patient into consideration. What we have done is to discover an intelligible practical rule which will guide you in the use of wine in certain, I think in many, cases; but you are not to suppose that because a man has a clear first sound of the heart, therefore you are not to give him wine. You are not to suppose that because the heart is safe you can do without wine. Now, in a case recently under your observation, although the heart seemed to escape, or was at most only feeble through the course of the disease, frightful adynamia existed; day after day the patient's face was Hippocratic, or almost so; the general character of the disease was that of the most terrible putrescent fever—yet his heart escaped. And here is the result. We have given that man upwards of twenty bottles of wine and twenty-four ounces of brandy, and now, on the twenty-eighth or thirtieth day of the disease, we have the satisfaction of feeling that his case may be set down as among the triumphs of medicine.

I wish also strongly to impress on you the great importance of the use of other forms of nourishment in this disease; for we must not only keep up the nervous energy of the system by wine, but we must support nature by food. There is no greater mistake in fever than that of the withholding of food.

LECTURE XXVIII.

STIMULANTS IN FEVER, *continued*—Signs in connection with the heart of the agreement of stimulants: (1) return of impulse, (2) return of first sound, (3) gradual fall in the rate of the pulse—In cases of "fœtal heart" great boldness in stimulation is needed—No certain rules as to quantity of wine and whiskey or brandy required—Examples of free use of stimulants in malignant typhus—Case of Hardcastle (typhoid fever)—Eruption of vesicles as a secondary complication—Bed-sores.

We are to-day to consider practically the use of stimulants in fever. This is a matter difficult to be taught orally. The exhibition and the management of stimulants in fever are among those points in practice which are best learned at the bedside, so that when I am addressing the advanced students—men who themselves have already largely shared in the responsibilities of the fever wards—I do so as a fellow-student on the one hand, and a brother practitioner on the other.

Many medical men who have received little beyond a surgical education, or who have not had a case of fever on their hands before they entered into practice, and who probably have never attended in the wards of a fever hospital, on their first meeting with the disease, are timid in the use of wine in fever, and have not learned that in this disease the symptoms of inflammation are commonly fallacious. This, as I have before said, is from the nature of their medical education. Here we see the wisdom of that regulation of the University of Dublin, in accordance with which all candidates for the degree of Bachelor of Medicine must show that they have personally attended at least five cases of fever before being admitted to examination.

As experience increases, men become less timid in the use of wine, and accordingly we find that those physicians who are sneeringly termed men of the old school, are often the best practitioners in fever; they have learned by experience in middle life what you have been taught in your student days, and they know, by their perception of the vital phenomena, when to give or not to give stimulants, when to increase, to diminish, or to omit them.

Now it is a great thing to possess a simple rule which will guide the practitioner who has had little or no experience in this matter, in the exhibition of wine—and I believe that in the observation of the physical signs of the heart, he will obtain such assistance. You will not suppose that I advise you to be guided solely by the state of the heart, but I say that in solving the question as to the use and the management of stimulants, you are to ascertain and consider in every case the condition of the organ *plus* the general symptoms and history.

We have already studied the anticipative use of wine. Let us suppose we have a case of maculated typhus, say on the sixth or eighth day—the pulse not very weak, and at 115 or 125 in the minute; you find that the impulse is not strong, or it may be absent, unless when the patient lies on the left side—the first or ventricular sound is lessened. Under such circumstances the use of wine is called for, and there is a strong probability that it will agree. You begin with six or eight ounces of good port in the day—given in divided doses, together with proper food.

It will always be right that in such a case you should see the patient in the course of six or eight hours, to judge whether the stimulant has agreed; in a few cases even at this period of the fever the depression of the heart goes on rapidly, and if so, the stimulant will have to be increased. Should things on the next day remain without change, and should there be no signs of the stimulant having disagreed, you may continue. By-and-by it may happen that the first sound of the heart disappears, so that the organ acts with a single sound, even over both ventricles. This indicates increasing debility, and calls for a free use of the stimulant, and, in many cases, the employment of brandy, for which a good vehicle is warmed milk with a little sugar.

Now, in most cases of typhus fever in this country with favourable result, the prostration of the patient, of which the heart is commonly so good an index, begins to disappear at about the twelfth day, but you may find evidences that the wine has agreed even before that period. Of these the principal are:—

1st. The return of impulse.

2d. The commencing re-establishment of the first sound.

3d. The gradual coming down of the rate of the pulse.

Of these, the second and the third are the most important, for the return of impulse is sometimes the commencement of an excited state of the heart—always an unfavourable symptom in fever. When the first sound is restored in its normal manner, the process is gradual, being commonly first perceived over the right ventricle, and when completed it has its natural character.

But with regard to prognosis, the best indication of the agreement of stimulants is the lessened rate of the pulse; even a slight diminution, say of two or three beats in the minute, is of great importance. If at your next visit the diminution of rate goes on, it is a great encouragement to a good prognosis. Remember how often we have seen a good result when the only favourable point in the case was that the pulse became slower and slower while stimulants were being freely used. Still, to say that the falling of the pulse under stimulants is a certain ground for a good prognosis would not be justifiable, as we shall see presently.

In cases of extreme nervous prostration and debility of the heart, as shown by the fœtal character of the sounds—or in some instances by the extinction of all sound, while the pulse continues—great boldness may be used in the administration of stimulants. It is true that in examples of the "fœtal" heart the ventricular sound continues. Yet we have found that the lessening of the second sound is an important sign of generally deficient vital energy, and the necessity of free stimulation. Of this I offer no explanation, but of the fact I am certain.

It is very difficult to lay down rules as to the quantity of wine or other stimulants that may be required by circumstances, and you have seen cases in which the patients took a quantity of stimulants, which in the state of health would have produced intoxication. We have commonly given from 16 to 24 ounces of wine with half a pint of brandy in the day; and in many cases we might have given more, and with advantage.

In a severe case of maculated typhus with extinction of the first sound over both ventricles from the seventh day, 96 ounces of wine with five ounces of brandy were exhibited. The coming down of the pulse was remarkable.

Thus on the	7th	day it was at	124
"	8th	"	120
"	11th	"	116
"	12th	"	96
"	13th	"	80
"	15th	"	76

On this last day the skin was cool, the impulse perceptible, and the sounds proportionate.

This case also showed that peculiar character of pulse which we have observed in many examples of the debilitated heart in fever treated by free stimulation, the pulse having been restored to its natural rate, and convalscence all but established. It continued to fall even as low as 32 in the minute, when it rose progressively to its natural standard.

Thus in this case the pulse was—

17th day	60
18th "	50
22d "	32
25th "	60

The convalescence was perfect on the 18th day.

This case was a model example of typhus, in which recovery was not interfered with by any secondary lesion. The falling of the pulse so far below the natural standard is not constant, but I have always looked on it as showing that the heart had been greatly weakened, with or without muscular softening.

I have told you that no rule can be laid down as to the actual quantity of stimulants to be exhibited. Every case has its own peculiarities even in the same epidemic. You will have differences in the necessity for stimulation, differences in the degree of vital prostration, in local complication, and in all the physical signs of the heart as to their nature, combination, mode of subsidence, and behaviour under treatment. As a general rule the freer the case is from manifest local complication, *apart from the vital depression of the* *heart*, the bolder may you be in stimulation. But you are not to allow the local complications—except that of active irritation of the brain—to deter you; and even in certain cerebral cases, where circumstances call for it, you may use stimulants tentatively.

Two cases of most malignant typhus occurred to me some years ago. Both the patients were medical men; one was a young man of a non-excitable and phlegmatic temperament. In this case the use of stimulants was commenced at about the eighth day, and ran on for more than a week. The symptoms were extreme prostration, continued—though not profound—coma, weakness of circulation, coldness of breath, enormous vibices, a general purpling of the skin, and paralysis of the bladder. A worse case so far as the essential disease was concerned could hardly be conceived. Fortunately the power of swallowing was unaffected, and you are not to despair of any case of fever as long as deglutition remains. During ten days the stimulants given were so varied and in such large quantity that his friends refused to continue them, thinking it would be a dreadful thing that the patient should leave the world in a state of intoxication. We could not persuade them that we knew better, and we had to send one of the class of this hospital to mount guard over the case, and to administer the wine and brandy perforce. By the twenty-first day, when the disease subsided, he had taken at least two dozen of wine, including port, Madeira, and champagne, with six large bottles of brandy. The recovery was perfect and without any accident, and the gentleman has since enjoyed many years of the best health.

In the second case I did not see the patient until the twelfth day. He was a man of high mental culture and activity of mind and body. He had been attended by a physician of the anatomical and antiphlogistic school. In place of food he had got mercury, and in place of wine, tartar emetic. A glass of claret had been permitted on the day before we saw him. There was no disturbance of the brain, but he was covered with a petechial eruption approaching to purpura. The surface was cold, and the pulse almost imperceptible. From the middle of the calf of each leg downwards, and over both feet, the surface was black, the skin hanging in loose wrinkles, giving an appearance as if the patient had on a pair of black socks. We expected mortification of the legs and feet, but, within twenty-four hours from the commencement of the stimulating treatment, the circulation was fully re-established, the blackness had disappeared, the feet had become warm, and the fulness of the limbs had returned. I need not tell you that stimulants were used boldly. In the first eight hours sixteen ounces of brandy were given. The patient made an excellent recovery, and is still in the best health.

In both these cases the patients had been of very temperate habits. The disease was a most severe but uncomplicated typhus, the nervous system not excited, and the stimulants agreed throughout. Both cases were thus well adapted for the bold and continued use of the stimulant treatment.

Gentlemen, there is at present in our wards a patient whose case I would commend to your most attentive study. I refer to the young man Hardcastle, in whom the general symptoms of fever are presented in their most aggravated and appalling form. This patient is a native of England, and had been but a short time in Dublin. His case is full of instruction.

I have mentioned that he is not a native of Ireland because it is probable that this circumstance has acted in modifying the symptoms of his disease. Had this patient been attacked with fever in his native place, he probably would have shown the symptoms of ordinary typhoid fever, and the case would have been a comparatively mild one. But at all events, this much we may believe, that different countries present endemic, sporadic, and even epidemic fevers, with characters in some degree peculiar to themselves; and we are not yet able to explain why fever in one country differs so much from fever in another—why maculated typhus should be so common in Ireland, and comparatively rare in England—or why the fever in Paris should so commonly present a particular local lesion. Many causes doubtless act; and I suppose among others, such as climate, diet, soil, and so on, the race and temperament are to be reckoned.

I have suggested that if various families of mankind have a physiological stamp, they probably have also their pathological peculiarities. However this may be, it becomes a curious subject of inquiry, to determine what are the modifications of the symptoms of the fever in Ireland or in any other country, when the patient is not a native of the country, and especially if he has not been long resident in it. The most extraordinary case I ever witnessed was that of a gentleman, a native of France, who, after a long exposure to contagion during the famine fever, contracted maculated typhus here. He was a man of a sanguineo-nervous temperament, and exhibited during his illness a succession of symptoms widely different from those which we commonly see in the spotted typhus of this country. He was profusely maculated, and the peculiarity of the case consisted in the irregular manifestations of various local symptoms—principally engaging the nervous system—and the inconstancy of the general condition, especially with reference to excitement or collapse. This gentleman happily recovered, after passing through a storm of disease such as I and his other attendant, Dr. O'Ferral, had never seen before.

Hardcastle is a young man who has been well educated, and he is evidently above the rank of the ordinary hospital patient. His symptoms have been, from an early period of the disease, alarming in the highest degree. You will seldom see a worse case of adynamic fever. We may safely say, that for the last fortnight, both by day and by night, there has been an uninterrupted struggle between medical art and the fell disease which is upon him. During that time he has been lying more like a decomposing corpse than a living man; but he has been kept from dying by the bold and constant exhibition of stimulants, by tonics, and by food.

Some of you may wonder why it is that we thus go on with the increasing exhibition of stimulants—the untiring efforts to support life—although for the last ten days, at least, we have been hourly expecting his death. The answer is, that we believe his disease to be one which may subside, sooner or later, under the law of periodic action. His recovery will then take place—not in consequence of the action of any specific which has the power of curing fever, but from causes the nature of which is hidden from us. We are like the defenders of a post attacked by a powerful enemy, but yet expecting succour, and we seek to hold the place until that succour arrives.

There are two points in this case worthy of notice. One is that the nervous system has been so little engaged. He has had occasionally a slight delirium, and latterly some agitation and slight subsultus tendinum; but though he generally appears sunk in stupor, it is not true coma, but rather the stupor of exhaustion, for, when you rouse him, his intelligence appears to be good. Is this escape of the brain to be looked on as favourable, or the contrary? According to an old and well-founded opinion, all anomalous circumstances in fever are to be feared. You know the aphorism, "*Pulsus, vultus, et urina bona: et æger moritur.*" This contains an important truth; but, in typhus, the want of nervous symptoms is in general favourable; for of the symptoms referrible to one of the three cavities, doubtless those indicating nervous lesion are the most formidable.

The second point to which I wish to direct your attention is, that, although this patient presents the symptoms of typhus so decidedly, he cannot be said to have any maculæ or petechiæ. In fact, his skin has been unaffected; there has been none of the so-called exanthematous eruption of typhus; and, even at this advanced period, the existence of petechiæ is so doubtful, that I would not say that he has them. Yet, if ever a man had the *typhus gravior*, this man has it. His surface exhales the peculiar odour of typhus, strongly marked; he is prostrated to the last degree; he has been kept alive by the most powerful stimulation; he has a feeble heart, and well-marked secondary affections of the intestinal and bronchial surfaces; his mouth is full of sordes; his tongue black, dry, and cracked; his breath fetid. The stethoscope indicates a general and severe bronchial affection, and there is a wasting diarrhœa.

I am not going to take up your time by a discussion as to the distinctive characters of typhus and typhoid fever. But it would be, I think, difficult even to the advocates of the distinction, to declare in which class this case should be placed. In this instance, as in most others, the settlement of the question is of little value; for, whether the disease be typhus or typhoid fever, the treatment should be no other than that which we have so far carried out. I may say this much, however, that the presence or absence of an early eruption having some similarity to an exanthem, or, again, the presence of petechiæ, appears to be insufficient to justify our drawing a strong line of distinction between these diseases. I would advise you to receive with more than caution the doctrine, that the early eruption in typhus is a true exanthem, and that its absence in any given case points out that the disease is not typhus, but typhoid fever.

Again, it is stated that the non-maculated fevers are often protracted and dangerous; so they are, but not so often as they are short and easily managed. And I have not seen that relief of organs in typhus, which some describe as the rule, when the eruption appears. How, then, are we to look on the eruption. Certainly not as a distinctive mark between two different diseases. Gentlemen, we know that typhus fever will run its course and destroy life, without the necessary production of any hitherto ascertained anatomical change. We know further, that in many cases local alterations are formed, but that there is the greatest inconstancy in different epidemics, and in different patients during the same epidemic, in the seat, amount, time of appearance, and results of these local changes. The cutaneous rash is plainly one of this group of secondary affections; and its absence or presence can no more be said to distinguish the disease, than the absence or presence of any other of these affections. I think we may admit that an early and florid eruption is often met with in typhus, which is well marked in other respects also; and again, that such cases generally require and bear stimulation.

To return to the case of Hardcastle. We observe that there has been as yet no tendency to the critical or periodical retrocession either of the secondary diseases or of the general affection. The fourteenth day passed by without any crisis, or without any subsidence of the disease; the eighteenth day passed by; the twenty-first day has passed by; and he is now in the twenty-fourth day of this terrible disease, kept alive by the use of wine, administered every hour, and also by the free use of hot brandy punch. He presents an appearance to-day to which I wish specially to direct your attention. You may remember that Saturday last was the twenty-first day, and it was then reported to me that the patient was getting a bed-sore. Upon examining him, we found in the ordinary situation of bed-sores a blush of redness and a slight degree of œdema; but beyond that there was nothing remarkable. There was this point, however, which I observed at the time, although it was not until to-day that I thought it of importance, namely, that there was already a solution of continuity of the skin. Now, this is remarkable, and if such a case should occur to me again it would awaken my attention. In the ordinary cases of bed-sores we seldom see a solution of continuity of the skin at an early period; we see lividity, blackness if you will; but a solution of continuity of the skin before the ordinary appearances of mortification have occurred, is extremely rare.

In this patient, on Saturday, just at the very centre of the livid patch on the skin, there was a slight solution of continuity. During the evening the nurse observed that several dark-coloured vesicles or pustules were making their appearance on various parts of his body. Mr. Parr saw these on Sunday, and he found that between the shoulders there was an eruption of livid tumours, which appeared to be something between vesicles and pustules. To-day (Tuesday) such of you as saw the patient will not soon forget the extraordinary appearance of his back. I have been attending on fever in this hospital since 1827, and I never saw anything of this kind before.

Now, it is a very remarkable circumstance, that this eruption of gangrenous vesicles or pustules should have occurred upon the twenty-first day; and this case, as far as it goes, appears to strengthen an opinion, which I have long held—that we were in error in attributing what are termed bed-sores in fever, simply to mechanical causes. The general idea is, you know, that they are simply the result of pressure long continued on a particular part of the body, from the neglect of turning the patient in bed—of pressure combined with the effects of position. Now there can be no doubt that these are predisposing causes, but whether they are the sole and entire causes is another matter; and I am almost convinced that the bed-sore in fever is often one of the group of secondary affections analogous to the ulceration, or the tumefaction and ulceration, of the glands of the intestine—or to the bronchial affection which occurs in the middle stages of the disease—or to the other secondary organic diseases of fever. And if analogous to them, it should be more or less observed to be under the law of periodicity; it should appear and disappear at a certain time, or, at least, exhibit a tendency to do so. We have observed this very curious fact. There are cases in which the system seems to be in such a state that bed-sores will form from the slightest possible causes—that is to say, whenever there is any irritation or pressure, no matter how slight, a bed-sore will form in any part of the body. Some years ago we had a patient in this hospital, who, after the twelfth day, showed this tendency. She had bed-sores on the nates, and one on each shoulder. Then the tendency to the multiplication of these sores increased, and every morning two or three new ones were discovered. Wherever there was the slightest possible pressure, we found a gangrenous spot—in the fold of the arm; in the fold of the pectoral muscle; where the mamma leant upon the arm; where the head leant upon the hand in sleep; where one leg lay on the other—the mark of a black hand was stamped upon the surface. In every possible position in which anything like pressure was made, or irritation excited, there were bed-sores; and this tendency went on day after day, up to a certain day, until there were about thirty sloughs in different parts of the body. From that day—I might say from an hour of that day—no more bed-sores formed, although the constitutional symptoms had not subsided. The patient then had to go through the process of throwing off all these sloughs, of granulation of the cavities from below, and of their cicatrization. She was kept lying on her face for upwards of a month, and finally recovered.

Now what I want to draw your attention to in the case of Hardcastle is, that this extraordinary eruption of gangrenous patches on his back is not of the nature of bed-sores in the ordinary sense of the word. These patches are not produced by pressure. We find them in great abundance in the hollow of the back, where pressure is relieved by the pelvis and by the shoulders. We find them in abundance in the interscapular region; but if we wanted additional proof it is this—that we find them on the anterior portion of the thorax. They came out as vesicles. These vesicles became hard at the top, then black, and soon the mass dropped out; and this patient's back is now as if you took a sharp gouge and punched out circular portions of the flesh in a vast number of spots. Now it can hardly be doubted that this singular appearance is an example of a secondary disease affecting the surface; and it is very remarkable that it should have appeared on one of the critical days—upon the day when, in the ordinary course of fever, the disease should have subsided. It strengthens greatly the opinion, that not only is the general disease under the law of periodicity, but that the secondary alterations are so too.

As a general rule, gentlemen, in prognosis, the occurrence of any vesicular eruption whatsoever in fever is bad. We have in fever several forms of vesicular eruptions. But suppose you take a patient's hand to feel his pulse, on the eighth or tenth day of fever, when he is otherwise going on well, and you are surprised at seeing a vesicle upon his arm. Do not neglect this—do not overlook it. The mere circumstance of that solitary vesicle forming so silently, without any pain, without any notice, points out that there is mischief before you—that the case is likely to go wrong. It is a very important prognostic. Here we have on this patient an eruption of vesicles running rapidly to deep gangrenous destruction of the part, for some of the cavities formed by them are singularly deep, though circumscribed.

Now, suppose that in place of that disease attacking the skin, upon the fourteenth day, or whatever day you please, it should attack the intestine. Suppose that the typhous matter suddenly infiltrated a gland in the intestine, which should fall as suddenly to gangrene, and that there was a solution of continuity; you will at once see the progress of the worst form of the typhous secondary disease of the intestine. You may look on this man as at this moment turned inside out. On the surface of his skin you are able to learn the history of the worst form of the typhous ulceration of the intestine. This extraordinary condition of his surface no one will say is inflammation of his skin. Apply the same view, and will you say that the disease of the intestine is inflammation of that part? Certainly not.

Whether this man is to live, gentlemen, or to die, I believe none of us can venture to say. Of course the chances are enormously against him; but I have said that in the treatment of fever you are never to despair so long as the patient can swallow. So long as he is able to take nourishment, or to swallow wine, no matter how dreadful or apparently hopeless the symptoms may be, you are not to desert him, but—to use the phrase of our glorious sailors—you are to fight the ship while she swims. In a disease under the mysterious law of periodicity, every hour of compelled life is a clear gain. And, over and over again, you will find that your efforts will be crowned with success. You will see a patient lying with his back icy cold; you will see him pulseless—his lungs filled with secretion—his belly tympanitic—with dreadful diarrhœa—the lower extremities gangrenous—himself in a state of insensibility—and yet, even under these circumstances, a recovery is possible. But that recovery can be effected only by the steadfast determination of the physician not to desert his post until the vital spark has actually fled; and, if you commit an error in holding on—in hoping against hope—at all events it is an error on the right side.

LECTURE XXIX.

STIMULANTS IN FEVER, *continued*—Case of Hardcastle, continued—Treatment by food and stimulants in extreme cases—Presence of cerebral symptoms to a great extent unfavourable to the exhibition of stimulants—Necessity for daily observation of the effects of the treatment in each case—Signs of disagreement of stimulants—*Routine* practice is in every instance to be deprecated—Fallacies of the numerical system in therapeutics—History of *routinism*—Its results—Description of routinism in the treatment of fever.

WITH reference to the case of Hardcastle, with which we were occupied at our last lecture, we may hope that the symptoms have at last yielded. The great interest of this case consists in its having been an example of a fever in which the patient was scarcely maculated, yet in which the stimulating treatment had to be pursued with an activity as great or greater than that which we are called on to employ in the worst cases of spotted typhus.

On looking over my notes I find that on his admission, which was on or about the seventh day, he had a few scattered maculæ on the abdomen, of a large size, and of a leaden gray colour. He then had diarrhœa, abdominal tenderness, and ileo-cæcal gurgling; and the sounds of the heart, though weak, preserved their natural mutual relations as to force and duration. Doubtless the patient at this period might have been well described as labouring under typhoid and not typhus fever, according to the distinctions now in vogue; but on the 14th, or the 21st, or the 24th day, he would be a bold man who would declare that the case was not typhus of the worst description.

He is now at the 28th or 30th day of his illness, and we have every reason to believe that all will now go well. Since the eruption of gangrenous vesicles or pustules, which occurred on the 21st day, there have been no new appearances of this form of disease, there has been no new bed-sore, nor have the gangrenous patches spread, as might have been expected; two of them are in the form of sinuous cavities, but even these show signs of healing.

These sores were treated first, you will remember, by the simple, and afterwards by the fermenting, poultice; but as the latter gave considerable pain, the nurse returned to the simple poulticing, and now we have changed our plan, and are using stimulating dressings to the ulcerated surfaces.

In the management of these sores, whether they be the ordinary bed-sores or examples of the gangrenous pustules, both of which appear to be of the nature of the secondary affections of typhus under the law of periodicity, it sometimes happens that we have to deal with extensive sinuses. I have seen them at times of not less than six inches in length. In most cases the best treatment for them will be stimulating injections, using the vulcanized India-rubber bottle with a long and slender ivory pipe. It is generally requisite at first to wash out the sinus with tepid water, and afterwards to inject some of the metallic solutions—diluted solutions of sulphate of copper, nitrate of silver, or sulphate of zinc—and when the discharge is very fetid, you may use the decoction of bark, or solutions of chloride of lime or soda. An excellent dressing when the sore is open is the Canada balsam combined with oil, or a mixture of equal parts of castor oil and balsam of copaiba. You will derive advantage, also, from the employment of pressure by means of flat compresses of lint, and a roller when it is possible to apply it, or in other cases you may employ strapping with adhesive plaster. When the sinus is in a depending position, and matter accumulates in its lower portions, it is sometimes necessary to make a counter opening; but this operation should rather be delayed until the system has improved; the case is then to be treated as an ordinary surgical one.

Now let me draw your attention to the diligence with which the administration of wine has been pursued in this case. We began its exhibition on the 2d of November, which was the eighth day of the disease; on that and the next four days, the quantity administered was six ounces daily. The wine used all through was port, of an excellent quality. From the 6th to the 11th he had twelve ounces daily, and from the 11th to the 18th his daily allowance was twenty-four ounces. During the next three days it was reduced to eighteen ounces; and from the 21st to the 25th, to twelve ounces per diem. On the 26th and succeeding days he had ten ounces; on the 28th the quantity was reduced to eight; on the 4th of December he had but four ounces; and the wine was omitted altogether on the 5th. Besides all this, a tumbler of hot brandy-punch, containing two ounces of the best brandy, was administered whenever the patient's state seemed to require it. In this way we used about twenty-four ounces of brandy, seven bottles of porter, and 432 ounces of wine, while, in addition, bark, musk, and ammonia were freely exhibited.

Some may suppose that this quantity of wine was excessive. Such is not my opinion, nor will it be yours when you come to treat the typhus of this country in a large hospital. I am sure we might have given him with safety much more, and I doubt if we could have done with less. The result of the case confirms what I have said to you before, that in fever, no matter how terrible the group of symptoms may be, *you are not to despair so long as the patient can swallow.* Bear in mind, too, that Hardcastle has been carefully fed throughout with chicken broth, beef-tea, and jelly; and we have now passed that period when, under the law of periodicity, his terrible disease should subside.

The principal symptoms were extraordinary prostration, coldness of the surface, and feebleness and irregularity of the heart's action; and it was not until the end of the eighth day of the exhibition of stimulants in great quantities that any favourable influence was produced on the circulation. The case strongly illustrates the advantage of persisting in the use of stimulants, although for days together no amendment seems to follow their employment.

I cannot too strongly impress upon you that even under apparently desperate circumstances life may be saved by the repeated introduction of small quantities of food and stimulants. Here we see the advantage of skilled nurse-tending. In the practice of a friend of mine a case occurred in which the power of deglutition was all but lost, the vital powers were sunken to an extreme degree, the action of the heart almost imperceptible, the eyes staring, with contracted pupils; while the symptom of lachrymation, regarded by experienced men as one of the worst in fever, was present. It was thought by all except the physician that the patient should be left to die. He, however, did not utterly despair. A large blister was applied to the occiput and nape of the neck, and a teaspoonful of brandy and beef-tea was administered every ten minutes during many hours. A slight motion of the eyelids was at last perceived. This was followed by deglutition, and after some time reaction had taken place.

Some would say that in this most severe case the recovery was to be attributed to the blistering. It is more probable that it was connected with the action of the periodic laws, favoured by the continued introduction of stimulants. In such a case the use of enemata of beef-tea or of milk, containing in addition a small quantity of brandy, and also quinine, as recommended by Dr. Graves, is indicated.

As to the employment of wine in a case seen for the first time, you will remember that in fever those who have been previously of temperate habits are generally the best subjects for the stimulating treatment. In our wards great quantities of wine have produced the best effects in the peasant class. Such men are by no means habitually intemperate. They may exceed now and then on the occasion of a fair or a wake, but their habitual drinks are milk, water, or tea. It is not so with the artisan class, who indulge in ardent spirits. Here I beg of you to remember what we have seen as to the anticipative treatment, and also that having to deal with a case of fever—say, in its first week—you cannot predicate how long it will continue. This is particularly true in the typhoid form, especially when affecting the adult.

It would seem as if the frequent habit of alcoholic stimulation in health rendered the brain less capable of supporting wine under the condition of fever. At all events, you have seen that the use of stimulants where the patient had been a drunkard has by no means the same admirable result observed in men of a different habit.

The freedom from symptoms of cerebral excitement, particularly when attended by heat of the head and increased action of the cerebral arteries, is of course favourable to the use of wine.

But there is another cerebral condition which renders the use of wine in fever less often advantageous. It is met with in those whose occupation has long entailed a close and intense mental labour. Such subjects you will meet more frequently in the middle classes of society than among hospital patients, and in them we find that, while other circumstances indicate the free use of stimulants, their tranquillizing effect is not seen, and they have to be omitted or used only at intervals. This is one out of many reasons why the overworked professional man, especially if he be a physician, is so bad a subject for fever. Indeed, whenever you are called to treat a medical brother in typhus or in typhoid, you may lay your account at having a rock ahead.

In the course of a case of typhus or the more prolonged examples of severe typhoid, in which you are giving wine, you must every day be on the look-out for symptoms that the stimulant is no longer necessary or is disagreeing. Such a change is common, showing that the period has arrived when the stimulant is beginning to have the intoxicating effect which it would have were the patient not in fever. It is not easy to describe accurately this state, and you must learn it by observation. There is an undefined general excitement, sometimes with heaviness and even a degree of delirium, often of a novel kind, together with loss of sleep. Symptoms not unlike many of those in the earlier stages of the case appear, while the pulse is more resisting and the patient complains of thirst and general *malaise.* Now, some of you have seen this group of symptoms in the advanced stages of fever where stimulants had been employed at first with great advantage, and you will remember the benefit which followed their disuse or diminution. This is a most important point of practice. Coincident with the use of wine or other stimulants you may have observed a gradual subsidence of the symptoms of fever, the re-establishment of the heart's action, the coming down of the pulse, the cleaning of the tongue, and an improvement in the nervous symptoms. Under these circumstances the wine may be diminished gradually.

But where there are indications that it is beginning to disagree, and that, in place of having a calming, it has a disturbing, effect on the brain and heart, *although at first the opposite state had been induced*—then the omission of the stimulant may take place at once, and the patient be supported on bland and unstimulating nourishment. You must have seen examples in our wards of the happy effects which followed the disuse of stimulants.

When, in a protracted fever in which stimulants had been clearly indicated and had manifestly agreed in full quantity, symptoms of a more general disturbance of the system supervene, you must consider whether this condition is owing to an exacerbation of the essential disease or to the influence of stimulants; in other words, whether the time has not arrived when their sanative action has given place to an opposite effect. Under such circumstances your course may be often, and safely, a tentative one. Such a course is recommended by Dr. Murchison when there is a question as to the giving of stimulants in the early stages of fever; and here likewise you may feel your way in an opposite direction and watch the effect of a certain diminution of the remedy.

Now, gentlemen, before concluding this lecture, I wish to say to the junior members of the class, and indeed to you all, that physicians are to be met with who boast that they do not give stimulants in fever, while, on the other hand, there are men in whose practice their use is a matter of routine. In either of these categories you may meet those who refer to and compare the numerical results of their practice. But these men have not learned how inconsequential are such comparisons. They have not learned how fallacious the results of the numerical system are in indicating a line of practice to be adopted *in all cases.* They have not perceived that life may be saved or lost by the adoption of this or that system—the advocates of stimulation saving those cases which required it, and their opponents those where it was injurious or unnecessary.

It is true that the observations of the numerical school have been directed to determine what treatment in a certain disease will be followed with success in the greatest out of a given number. But this is not what the practical physician wants to know. Is it not rather what is best for him to do in the case of A, B, or C? A certain treatment may have been successful in 75 per cent. of a group of cases, but he knows that this will not justify him in adopting it exclusively in all or in any of the remaining 25 per cent.

He has learned that fever, in the general acceptation of the term, is a condition with laws of periodicity, and that, therefore, all therapeutic conclusions as regards it will have to be estimated by a reference to this characteristic; and, lastly, that fever is a varying condition, its cases—although capable of being arranged into groups—having certain similarities, but also infinite varieties, in local and essential symptoms; in amount, period, and degree of complications; in the influence of remedies and in the epidemic character. Therefore in its treatment, and with reference to therapeutics, each case must be considered *by itself.*

It is plain that dependence on the numerical system will encourage routinism—a line of conduct so opposed to the proper dealing with disease; for to adopt a practice deduced from the results of comparison of numbers is but to justify routinism under the show of authority.

It is hardly necessary to observe to the senior members of this class that the use of wine and other stimulants in our wards is in no way a practice of routine. Gentlemen, you have seen many cases during the last year in which wine was sparingly or not at all used in the course of the fever, simply because it was not required. Food was regularly given, while careful watching was practised, so as to detect early any sign of failure of the energy of the brain or circulation.

It will be well to look at the various illustrations of routinism in the treatment of fever which we have known in this country. The Irish physicians of the last century might be called routinists in one respect—namely, that they employed wine and tonics in most cases liberally, if not indiscriminately. Like the old English physicians, however, they were eclectics, and so did not fall into many of the errors of their successors. Their doctrine of putrescence merely implied prostration of the system—in other words, debility was the condition to be guarded against and met; and doubtless, in the whole class of adynamic and essential diseases, if they erred, the error in practice was one on the right side. Drs. Quin, Plunket, and Harvey, all used wine freely in maculated typhus. Indeed, a bottle of Madeira daily was commonly ordered by them. To a certain extent they used it anticipatively, for they did not wait for the advent of extreme prostration.

The next phase of routinism was of a different and opposite nature. The doctrines of Broussais, which taught that the essential disease was symptomatic of local inflammation, while the reverse was true, turned the minds of men into a wrong direction. The idea of inflammation was opposed to the exhibition of stimulants and tonics, and the practice of medicine was reduced to using direct or indirect depletion.

The theories of Clutterbuck and of Armstrong supplemented those of Broussais as to inflammatory action being the cause of fevers, and so that new routinism in practice was generated, of which the leading characters were starvation and evacuation. The laws of periodicity in fevers were ignored, as was also the great fact in medicine that symptoms diagnostic of local disease when the patient has not essential fever cease to be so when he has.

Thus was established the routine practice of the adoption of evacuants, of bleeding, of diaphoresis, and even of purgatives. The system was pertinaciously reduced through every outlet, while little or nothing was introduced to supply the deficiency. The disciples of Broussais by applying leeches to the abdomen and by starvation reduced the patient to a state of inanition. Those of Clutterbuck did the same by depletion of the head for imagined cerebritis, and those of Armstrong operated similarly for the reduction of a supposed inflammatory diathesis. The depleting effect of acute disease, the reduction of the volume of blood by the fever itself, the waste of tissue —were overlooked, while every new interference with the powers of nature more and more impaired the *vis medicatrix.*

We may attribute to the same cause that timidity in the use of wine in fever which is still observable in the practice of some of our brethren, especially those who during their student lives have not been brought into daily bedside contact with the disease. I remember some few years ago receiving an urgent call to see a lady in fever. I was entreated to lose no time in going, as the patient was so low, so far gone, that she had actually been ordered wine! I found the lady at about the fourteenth day of a low enteric or typhoid fever. She was extremely weak, and suffering under great mental depression and physical exhaustion, which had been present from the commencement of the attack. I recommended the immediate use of wine. "Oh," was the answer, "she has been ordered wine, and is now taking it." On inquiry it turned out that what had been ordered was light claret, the quantity being *one or two teaspoonfuls in cold water twice or thrice a day.* Now, this was the treatment of a physician whose opinion was in general not to be despised, but who had, like many of his contemporaries, been brought up not only in ignorance of the use of wine, but in a terror as to its effects on the supposed inflammatory condition of fever. My advice as to the quantity and quality of the wine was looked on as daring and innovating, but was nevertheless followed, and with full success.

Closely following on the routine local and general antiphlogistic treatment in fever was a method which seemed to spring from the adoption of the views of Abernethy as to the influence of derangement of the chylopoietic viscera in introducing disease. A patient might or might not have a continued essential fever, but the intestinal and renal secretions showed derangement. Here the treatment recommended itself by its simplicity—a mercurial pill at night, followed in the morning by doses of infusion of senna, with rhubarb and gentian and Epsom salts, the care of the attendant being mainly directed to the appearance of the tongue and the inspection of the evacuations. This practice would be continued for days, the digestive organs obstinately refusing to right themselves, notwithstanding the treatment, until the patient began to sink, and was perhaps attacked with peritonitis, the result of perforation. Let me tell you a case of this kind.

A gentleman previously healthy was attacked with symptoms of fever, and attended by two professional men long since dead, one a physician, the other a surgeon. He was treated for many days on the mercurial and purgative plan. I need not say that the fever continued, and as at last there was considerable sinking of the vital powers, a consultation was asked for by the patient's friends, and an eminent consulting physician of Dublin saw the case. He suggested that the treatment had been carried sufficiently far, and recommended chicken broth and a moderate use of wine. A light tonic, consisting of an infusion of cascarilla with a few drops of dilute muriatic acid, was also ordered.

This was in the morning, and within two hours, the consulting physician having to leave town, I was hurriedly summoned to the case, it being alleged that the patient had been poisoned by the medicine. Violent pain had supervened *just at the moment of swallowing the first dose of medicine.* It was easy to see that perforation and peritonitis from long-continued intestinal disease had taken place. Nothing that I could say would induce the friends to take this view of the case, and to my surprise they were backed up by the medical attendants. I even drank some of the mixture in their presence. The patient sank in the course of some hours, and it was only by my declaring that a coroner's inquest should be held that I got permission to examine the body. The ileum was extensively ulcerated, and complete perforation had occurred in no less than four places. In one, probably that which caused the effusion into the peritoneum, the opening was the size of a fourpenny piece.

The coincidence in time of swallowing the first dose and of the effusion into the peritoneum was singular. It was hardly down when the patient cried out, "I am poisoned! I am poisoned!" and remained in terrible pain until he was moribund.

Here was a case of enteric or typhoid fever in which the intestinal disease was doubtless aggravated by the continued catharsis for many days. In the Report of the Meath Hospital, by Dr. Graves and myself, many cases of intestinal perforation are given where at the commencement of the fever hypercatharsis had been induced by the exhibition of doses of saline purgatives. Looking at the routinism then prevalent, the case I have detailed was probably not an exceptional one, and curiously illustrates that a knowledge of medicine is not necessarily implied in the legal qualification for practice.

But as the principles of right reasoning in medicine are better inculcated and understood, and as larger views of the pathology of fever—such as those taught by John Peter Frank, by the fathers of British medicine, and by modern writers, like Christison, Graves, Watson, Murchison, Jenner, and Tweedie—are more generally known and made use of in medical education, the older as well as the newer forms of routinism will disappear. The time is coming rapidly when routinism in its successive phases will be forgotten, and the state of fever be dealt with in a philosophical spirit.

Before concluding this lecture let me give you an extract from one of the writings of a witty medical satirist, the late Dr. Brennan, of Dublin, commonly called "The Wrestling" and sometimes "The Turpentine Doctor." It is entitled "A Receipt to Make a Fever," and is a picture of the practice of the day three-quarters of a century ago—unhappily, not yet extinct:—

Any patient, when you get him,
First of all, be sure you sweat him;
The next day you need not heed him,
But the third take care to bleed him.
When he's sweated and he's bled,
Then, of course, you'll shave his head;
Clap on five-and-twenty leeches,
Tho' the first cost a crown each is.

When to sink he does incline,
Blister legs and give him wine.
Tell his uncle or his brother
That you'd like to see another—

Yet let nobody approach
But a doctor in a coach;
For a coach does mighty wonders
In concealing doctors' blunders.

The writer then passes in satirical review the different consulting physicians of Dublin, concluding with himself:—

If they talk of Brennan's knowledge,
Say, "He is not of the College,"
Or, to joke if you incline,
Smiling mention—*Turpentine*—
And you may throw in—by dad!—
That you know he's wrestling mad.

The patient dies:—

When with drugs you well have swilled him,
Tell his friends *the fever* killed him;
All that could be done was done—
The worst you ever saw, but one:
And this is a mighty consolation
In such an awful visitation.

LECTURE XXX.

TREATMENT OF THE LOCAL SECONDARY AFFECTIONS IN FEVER—Relative importance of these affections as regards *prognosis*—BRONCHIAL AFFECTIONS—Necessity for administration of stimulants and nourishment—Danger of exhibition of tartar emetic—Failure of emetics—Turpentine-punch—Dry-cupping, poulticing, blistering—*Internal remedies:* bark, ammonia, spirit of chloroform, turpentine—ACUTE CONSOLIDATION OF THE LUNG—Its *three forms*—Treatment of the first form by dry-cupping, blisters, quinine, turpentine, and wine—Of the second form by local depletion simultaneously with the administration of wine—Of the third form, *externally* by iodine and blisters, *internally* by tonics and iodide of potassium.

FOLLOWING the plan which I have laid down in this course of lectures, I shall to-day direct your attention to the management of the secondary local affections of fever. We may classify these under four headings, according as they involve the nervous, circulatory, pulmonary, or digestive systems.

Were we to attempt to classify these local affections with respect to their importance as regards the parent disease and the safety of the patient, it would be difficult to determine whether the nervous, circulatory, pulmonary, or digestive symptoms should be considered as entitled to the first place.

In reference to *prognosis*, the predominance of cerebral symptoms may certainly be held to be of unfavourable import, and one reason for this is that their presence often interferes so materially with the attempt to combat prostration by the administration of stimulants. But, apart from this consideration, the preponderance of cerebral symptoms is more serious as always indicating—not necessarily organic change in the nervous centres—but a functional disturbance in them which reacts on all the other systems of the body.

If, however, we were to classify the various phenomena connected with the different systems of the body in fever according to the amount of their corresponding anatomical changes, we should say that the pulmonary affections are the most liable to changes of this description.

Thus, notwithstanding all the researches which have been instituted respecting the anatomical changes in typhus and typhoid fevers, no one can at present venture to say what condition of brain corresponds to this or to that symptom in these diseases; no one can accurately determine the state of the brain as regards its anatomical changes from the observation and study of any symptom. We may recognize a condition of brain in fever in which stimulants will not be borne, and another wherein they are useful, but we may be unable to reduce either of these to an anatomical expression. As we have seen in a former lecture, there is no symptom in ordinary fever whereby we can determine the presence of actual and progressive *cerebritis* or *arachnitis*. One patient will be in a state of high delirium, with injected brain, another will have an injected brain in the absence of any such symptom.

These are important facts, most necessary to be kept in mind; but you are not to infer from this that we are altogether powerless in the treatment of the cerebral symptoms of fever. All that has been said shows only, that, in dealing with the special condition of existence to which we give the name "fever," our pathology must not be too material in its character or tendency, and that the symptoms of merely functional suffering are infinitely varied in nature, time of appearance, intensity, and their degree of combination with organic change.

I have said that of all the secondary diseases of fever those affecting the pulmonary system are the most frequently attended by anatomical change, and among these—THE BRONCHIAL AFFECTION—for primary bronchitis it does not seem to be—most especially so.

It is remarkable how silently this affection will be developed in proportion to the severity of the fever. From superficial observation the presence of serious bronchial disease might never be suspected, but on exploring the chest morbid sounds may be heard universally in front and behind. Yet there may be no severe cough, no extreme dyspnœa, or lividity of countenance.

Frequently with this secondary disease in malignant typhus an extreme degree of weakening of the heart, with softening of that organ, will be found associated. By having regard to this complication we obtain the key to the treatment which is especially indicated in these cases—namely, the free administration of stimulants and nourishment.

Here, also, the anticipative method of treatment is often indicated, for the secondary bronchial affection with a weakened heart places the patient in a position—it may be—of the most imminent peril. The heart grows weaker, and there can be little doubt that its weakened condition is repeated in the muscular fibre of the lungs and bronchi. The bronchial tubes are loaded, mucus is copiously secreted, the muscles which assist the act of expectoration become paralyzed, and, should relief not be afforded, the almost inevitable result is asphyxia and death.

These observations are simply suggestive of the necessity of adopting a decided and active system of treatment. The more closely you investigate cases of this kind, the more convinced will you be that paralysis of the circular fibres of the expectorant muscles takes place; and here we have one—perhaps the principal—reason why the liberal administration of stimulants is found so successful under such circumstances. It may be that even after recovery from the primary disease death will ensue from purely mechanical obstruction in the lungs and air-passages. This is another reason for adopting the principle of meeting the disease early. I never saw a case of death from secondary bronchial effusion except where the disease had been overlooked at first.

Now let us advert to the general mode of treatment of this complication. Suppose you are called in to a patient, say on the fourth or fifth day of typhus. You find a râle in the large bronchial tubes, extending next day into the smaller tubes. Will you call this "bronchitis" and treat it as such? Certainly not. You have before you a patient in a certain condition as regards the respiratory functions, which condition is under the influence of the parent malady. If there be any inflammation present in such cases, it is specific, asthenic, and reactive, not to be treated by antiphlogistic means. The presence of the râle is not to induce you to bleed or to apply leeches, but what you have to trust to is active and energetic stimulant derivative treatment. Some physicians recommend in such cases the exhibition of tartar emetic. Where this course is followed the patient may sink.

Now, the inveterate habit with which men in our own time were imbued, of attributing every local symptom in fever to inflammation, led to the practice of giving mercury in this condition. But you will easily see the unfitness of such a course when time is pressing and it is absolutely necessary to modify the vital, and relieve the mechanical, state of the lung which threatens asphyxia. My friend Dr. Mackintosh, of Edinburgh, strongly advocated the use of emetics in this condition; but I do not recommend them—at least they have not been hitherto successful in our hands. You will meet cases in which they will not act at all. I have seen the most powerful emetics, of various kinds, exhibited without any vomiting whatever being produced. I have known cases in which, after milder remedies had been used, the sulphates of zinc and copper utterly failed. Or the full action of the emetic may occur, and be followed by great relief of the chest; yet in a short time the suffocative state will return, and, the sensibility of the stomach being destroyed, the patient sinks asphyxiated.

But the course of treatment under these circumstances long followed in our wards is dry cupping, blistering, and the free exhibition of turpentine in whiskey-punch. By this course our late excellent apothecary, Mr. Parr, saved many a life when the patient was almost *in articulo mortis.* He would administer a tumbler of strong punch with two or three drachms of spirit of turpentine, and repeat the dose, if necessary, in a short time. Often has he said to me in the morning, "Sir, I had to *punch* three cases last night—they are all doing well." The effects were simply wonderful, and illustrate the principle that you are not to despair in a case of fever so long as your patient can swallow.

This reminds me of a translation by Dr. Brennan in the *Milesian Magazine:*—

> Si quid novisti rectius, istud candidus imperti.
> Si non, his utere mecum.
>
> Doctors! if you have better drugs than mine,
> Say where they're hid; if not, use turpentine.

In this theatre my late colleague, Dr. Graves, dwelt largely on the value of this medicine in the secondary affection of the lungs in fever, and he has been followed emphatically by Huss of Stockholm.

In the less urgent cases you are not to forget that the disease may show a sudden and violent exacerbation; and I have often heard practitioners account for the occurrence of tracheal rattle and fatal asphyxia and excuse themselves on the supposition of a sudden effusion into the chest, when, in truth, the bronchial tubes had for days been engaged, and the affection unrecognized and neglected.

I repeat that in fever, especially in typhus, with a weakened heart, the affection of the bronchial tubes may be developed insidiously and to a great extent.

With respect to external and local applications in ordinary cases of this secondary affection, I have already spoken of the use of dry-cupping. Amongst other means may be mentioned the repeated application of turpentine fomentations; of poultices consisting wholly of linseed meal, or of linseed meal and mustard in varying proportions; and of moderate-sized blisters, covered with a linseed poultice, so that the vesicating action shall be favoured by the warmth and moisture of the poultice.

Of internal remedies, the decoction of bark, with ammonia and spirit of chloroform, is most frequently indicated; or moderate doses of turpentine may be employed with good effect. The confection of turpentine administered in peppermint water is found to be a valuable preparation. But above all it will be necessary to support our patient's strength by the judicious administration of suitable nourishment, and wine or other stimulants.

ACUTE CONSOLIDATION OF THE LUNG in fever may be considered, with regard to practice, under several forms: First, that in which symptoms and signs of anything like acute or sthenic inflammation do not occur. The disease is in these cases more or less silent or latent, and recognizable chiefly by physical signs. You are to treat this affection by dry-cupping, blisters, quinine, turpentine, and wine.

But between these cases and others where a greater activity of the ordinary inflammatory symptoms is observed, indicating that a local antiphlogistic treatment may be employed with advantage, there exists an intermediate form which includes cases of almost infinite shades and varieties of character.

In cases of the secondary pneumonic affection which possess many of the characters of acute sthenic pneumonia, there may be pain in the side, great local increase of temperature, and distress of respiration. Here the application of a few leeches, or of the scarificator and cupping-glass, may be followed by immediate and marked relief to the patient. In many such instances the use of wine is not to be intermitted on account of the practice of local depletion. There is a point of great importance in practical medicine—one which I wish to impress strongly upon you—namely, that lines of treatment apparently opposite or antagonistic may, under certain circumstances, be employed simultaneously with success. Your treatment is to be influenced not by the *name* of a disease, but by the condition of your patient; and you may relieve local irritation by local blood-letting while you support the general system, and deal with the essential disease by the use of stimulants.

When describing in a former lecture those consolidations of the lung, especially of its upper lobe, in fever, which seemed to partake of the nature of a crisis, I said that it was often a matter of doubt whether the clearing of the lung was to be attributed to the remedial measures employed or to the spontaneous subsidence of the condition in obedience to the law of periodicity. However, a small blister or two may be used, and the application of the tincture of iodine externally, with the exhibition of iodide of potassium in combination with a tonic, may be of advantage.

I need not say to the students of large bedside experience that it is sometimes difficult to distinguish between a primary pneumonia with a symptomatic fever and states of the lung secondary to typhus or to typhoid. You will, also, be prepared to hear that this difficulty has been more commonly met with since the period of change of type in disease. Still, during the last few years, several cases of primary pneumonia have come under our notice, in which, though with less of the general violence of symptoms once so familiar to us, we have used the lancet—moderately, it is true, but with the most rapid success. The pain, the adhesive red expectoration, the state of the heart, and the early appearance of the symptoms, were our chief guides.

The dreadful occurrence of sphacelus in consolidation of the lung in typhus is to be met by the antiseptic and stimulant treatment.

That recovery is possible in this catastrophe I have already shown you. The patient in question died after a lapse of some years from the first attack. We found recent sphacelus in one lung, and a cavity containing a dry slough, and with a firm lining membrane in the other.

LECTURE XXXI.

Treatment of Intestinal Secondary Affections.—Two chief indications: (1) alleviation of symptoms, (2) modification of typhous deposition—Poulticing—Local depletion in early stage—Analogy in variolous eruption—Danger of alterative or purgative treatment at the outset of Continued Fever—Necessity for caution—*Constipation—Diarrhœa*—Poultices, demulcents, sedative astringents, injections of flaxseed tea—*Tympany*—Turpentine injection—*Diet* in diarrhœa—*Perforative peritonitis*—Opium our sheet-anchor—Danger of the antiphlogistic method—Dr. Murchison on the treatment of this accident—Bran poultices and warm fomentations—*Hemorrhage* from the intestine in fever—Not to be interfered with unless continued and excessive—Treatment by astringents, opium—Illustrative case.

In a case of enteric fever, or of a well marked typhus with more or less of intestinal affection, your efforts in reference to the treatment of the local secondary disease will be directed less to the cure than to the palliation of the symptoms, and to diminishing the activity of that process under which the *mucous* membrane and glands become the seat of the typhous deposit.

We seek to lessen the amount of change by modifying the specific and afterwards the reactive irritation.

Local bleeding and diligent poulticing are the measures on which reliance is to be placed in the first instance, while everything which might excite overaction or hypersecretion of the intestines is to be avoided. The first of these remedial measures is best effected by moderate leeching of the ileo-cæcal, and in some cases the epigastric regions, due regard being paid to the strength of the patient and to the period of the case at which the local symptoms become manifest. In the earlier periods from six to ten leeches may be applied first to one and then to the other situation, and this will be often followed by the relief of local suffering and—as regards the general symptoms—by the best effects. The repetition of this local bleeding will depend on circumstances. But if tenderness, local fulness, increased arterial action of the belly, or muscular rigidity be wholly or in part removed or modified, it is not often necessary to repeat the application. I need scarcely say that the presence of these symptoms affords an indication for this early use of local depletion.

I have shown you that Broussais, in defence of the doctrine that fever was only symptomatic of gastroenteritis, appealed to the fact of the relief which often follows local depletion, and I have suggested a more probable interpretation of the entire matter. Local depletion, if employed sufficiently early in the case, may prevent altogether, or greatly modify the development of intestinal symptoms. Here it would seem that the lessening of the blood supply interfered with the deposition of typhous material along the intestinal tract in the agminated and solitary glands. This is strikingly analogous to what is observed in certain cases of variola, where the local development of the secondary eruption on the face or elsewhere is largely under control by the application of leeches or by strapping the part at an early stage of the disease. This point I have already illustrated in a former lecture.

Again the analogy holds good with respect to the pustular eruption of variola, and the secondary typhous deposits of fever in the intestinal tract. For even where there is good reason for supposing that these deposits have already taken place, and are passing on to ulceration, it is found that local depletion may be of the greatest use in allaying irritation and so preventing the violence of a reactive inflammation.

All this goes to prove that the influence of local depletion cannot be taken as an evidence of the primary nature of the local malady; for in the first place it receives a similar and easier explanation from the hypothesis of an essential disease with a secondary local affection; and in the next place the argument from analogy is altogether in support of this hypothesis, and against the views of Broussais.

It is still necessary—I regret to say it—to warn you against following the routine practice of giving what is called "alterative," combined with purgative, medicine, in the early periods of fever—a course too commonly followed, even while the practitioner is unaware of the nature of the disease he is treating. In this way a threefold injury is inflicted. The strength of the patient is exhausted at a time when it should be husbanded; the normal course of the fever is interfered with; and, should there be any tendency to the intestinal affection, it is doubtless augmented and exasperated by measures which determine to the part of the economy most likely to be the seat of lesion. This is analogous to what is often observed in constitutional maladies. Thus, in cancerous cachexia the local organic change is frequently determined by the receipt of some injury. In acute essential diseases, again, the same thing is noticed, as for example in variola, where the application of rubefacients will be followed by an increased development of the eruption, while a contrary effect will, as we have seen in a former lecture, be produced by local depletive measures.

In a large proportion of our cases of perforative peritonitis, hypercatharsis by saline purgatives had been induced at an early period with the mistaken view of seeking to cut the fever short.

We have spoken of the use of leeches and of light poulticing. Should there be constipation, with swelling of the abdomen, to such an extent as to render it advisable to free the bowels, mild enemata may be employed, and turpentine fomentations applied to the surface. The enemata must be composed of the blandest fluids, to which, if there be any troublesome tympany, a little turpentine made into an emulsion with yolk of egg may be added.

I am ready to admit that cases will constantly present themselves, in which the practitioner will be at a loss to determine whether continued fever is threatening, or the symptoms are to be referred merely to the presence of a "feverish cold." Under these circumstances I would still inculcate the necessity for caution, and would recommend that the smallest doses of aperient medicines likely to effect the objects in view should be employed.

But when you have symptoms of irritation of the intestine attended by diarrhœa, the use of poultices and of demulcents may be combined with that of astringents of a sedative nature. I know no better remedy than the acetate of lead given with some preparation of opium. In the form of pill these two drugs may be conveniently given; but if ordered in a mixture, it will be necessary to substitute the acetate of morphia for crude opium. I have never seen any bad result from lessening or checking the diarrhœa, or any symptoms of lead-poisoning, even when this medicine had been continued for many days.

Here I may allude to the fact, that, in the first two epidemics of cholera in this city, the use of the "pilula plumbi cum opio" was introduced by Dr. Graves, following the recommendation as to the value of the acetate of lead in the diarrhœa of Continued Fever by Sir

James Bardsley.[1] The remedy, in the hands of Dr. Graves and of many others, was employed in a vast number of cases, and I believe that during this great clinical experiment not a single case of lead-poisoning occurred either in the earlier stages of the case or in the later period of convalescence. We must, of course, remember that the acetate of lead is by no means so poisonous as the carbonate; but I would caution you against its possible change into this latter salt. If, for instance, it is compounded in a mixture with water containing carbonate of lime, it may be decomposed. This is still more likely to occur in the use of lead-lotions. The most violent and long-continued case of lead-colic I ever saw was that of a woman who had suffered from an extensive burn of the abdomen. Lead-lotion was applied to the injured surface for weeks together, and we must suppose that a considerable quantity of carbonate of lead was formed and absorbed, for symptoms of poisoning soon showed themselves.

To return—you are to use demulcents either by the mouth or in the form of injection. I remember, when a student, that a remedy called the "mistura olei et opii," was extensively employed in this hospital, and with the best effect. It was an emulsion of oil, gum arabic, and cinnamon water, to which a little laudanum was added. We used to believe that it acted mainly in lubricating the irritated surfaces. The injection which we have employed with greatest advantage in diarrhœa in fever has been one of flaxseed tea, to which a few drops of laudanum may be added. The infusion of flaxseed should be made with unbruised seed, and its effect in producing a sensation of general soothing, perceived throughout the intestinal tract, is most remarkable.

I have already spoken of the value of a turpentine injection in cases of constipation with tympany, but when this latter symptom accompanies diarrhœa, and becomes very extreme, the same remedy is often indicated. You might suppose that given by the mouth the turpentine would act as a purgative; but if it is given in small and repeated doses—as, for example, from 15 minims to half a drachm every two or three hours—the result may be just the opposite.

Nor is the mere symptom of tympany to be neglected, for although it is by no means commonly of much importance in the early stages of intestinal lesion in fever, it may assume dangerous proportions.

Some years ago a case occurred in these wards in which abdominal tympany seemed to be the direct cause of death. It resisted all remedies, and we failed in the attempt to pass the long tube beyond the sigmoid flexure. On dissection the small intestine and the colon were found enormously distended—the large intestine being turned over and obstructed by the formation of a complete fold at the commencement of the sigmoid flexure.

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[1] Clinical Lectures on the Practice of Medicine, reprinted from the second edition, 1864, p. 317.

Two points connected with the treatment of diarrhœa in fever remain to be considered. In the first place, we have to deal with the question of *diet*. We have already spoken of diet generally in fever, and you will remember the rules which were laid down for your guidance. It is occasionally found that beef-tea tends to increase the diarrhœa. Should this occur, we must either give it in smaller quantities, or suspend its administration. Chicken broth may be substituted, or farinaceous foods employed. Arrowroot with port wine, sago, tapioca, rice, rice milk, plain or boiled milk, and milk and lime-water in varying proportions are articles of diet to which recourse may be had. I have also used eggs, and have found them to agree perfectly. They may be boiled, or beaten up raw with milk sweetened with sugar. "Egg-flip," or the "mistura spiritus vini Gallici" of the "British Pharmacopœia," is one of the most valuable stimulant and nutritive preparations we possess.

The second point relates to the exhibition of other astringents than those already mentioned. These are "chalk mixture," gallic and tannic acids, the astringent tinctures (kino, rhatany, logwood, and so on), and dilute sulphuric acid. They are, I believe, all useful in their way. I have given pills of tannic acid combined with Dover's powder with good effect; but the most valuable of the remedies I have just named is undoubtedly the dilute sulphuric acid. It has a threefold value—it allays thirst, acts as a tonic, and possesses powerfully astringent properties. It may be administered frequently, and in doses of from 15 to 25 or 30 minims well diluted; or the aromatic sulphuric may be substituted.

We shall now speak of peritonitis resulting from perforation of the intestine, the occurrence of which may be explained by that insusceptibility of the peritoneum to adhesive inflammation which we have already considered. Remember how rarely we meet with general adhesions of the peritoneum in comparison with the frequency of such a condition in the pleura. Now, it would appear that the violent symptoms of perforation depend, less on a localized serous inflammation corresponding to a perforating ulcer of the intestine, than on the fact that an effusion of the contents of the tube into the general cavity causes suddenly an extreme and commonly fatal inflammation. You may occasionally meet cases where, although the serous membrane is perforated, no *general* inflammation occurs—the process is circumscribed, and is not attended with any effect on the constitutional symptoms. In fact, there is occlusion of the opening—the base of the ulcer being formed by the serous membrane of the adjacent fold of intestine, so that no effusion of the contents takes place. And we have seen that the effect of intense irritation in another cavity may be to render latent even a general inflammation from effusion, as in gastro-catarrhal fever or in cases of cerebral complication.

Dr. Murchison[1] gives a remarkable example of the latter. A young man aged 19, in enteric fever with acute delirium, suffered from profuse intestinal hemorrhage, but there were no symptoms of peritonitis. After death, on the 19th day, there were found ulceration of the intestine, perforation, and peritonitis.

Now, if we compare this terrible accident with the analogous condition of empyema and pneumothorax from perforation of the pleura, it seems to be more rapidly and certainly fatal. For, although in the chest the accident is often attended by violent symptoms, these are attributable rather to the frequently consequent and sudden collapse of the lung than to the influence of the resulting pleuritis on the nervous system.

It frequently happens in pneumothorax, that, after the first storm of suffering is past, there comes an interval of calm—often prolonged—while occasionally many of the vital symptoms of pulmonary disease disappear. The condition of collapse and compression seems, even for a long time, to suspend the diseased process in the lung, so that its constitutional symptoms may actually subside and disappear temporarily.

It was long believed, and is by some still held, that general peritonitis from perforation in fever is invariably fatal. But we have in this hospital arrived at a different conclusion. It is now many years since a female suffering from ascites, and under the care of Dr. Graves, underwent the operation of paracentesis, soon after which she was seized with symptoms of acute peritonitis. In those days, I may tell you, such an accident in the operation of tapping was not uncommon, and no wonder. A very large trocar and canula were employed, and efforts made to get rid of every drop of fluid. With this view the abdomen, while the canula remained in the wound, was compressed and kneaded in various places—the mouth of the hard instrument thus scraping against the serous membrane of the intestines—and a tight bandage afterwards applied. Besides the effect of all this violence, the serous surfaces, long separated from the effusion, were rapidly brought into contact, so that you can easily understand the frequency of peritonitis. The accident is now comparatively rare.

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[1] Continued Fevers of Great Britain, second edition, page 571.

In the case before us the strength was greatly reduced, and no remedial measure was proposed by the operator. The woman being in extreme pain, Dr. Graves administered a full opiate, with the best effect. Sleep soon followed, and after a few hours the patient awoke with the symptoms greatly alleviated. The opium was repeated in diminished doses, and after a few days all the symptoms of acute peritonitis had subsided. She made an excellent recovery.

The success in this case determined us to employ opium in free doses in the first example of perforative peritonitis which occurred, and the practice has since then proved in many instances successful.

The two great indications of relieving pain and of controlling the peristaltic action have been in these wards and in the practice of several of my friends fulfilled with the happiest effects, while the interesting result of the tolerance of opium in large quantities in acute peritonitis has been established. Thus a grain of opium, exhibited every hour, has been often given without any poisonous effect whatever.

A case occurred here which illustrates the danger which may follow any excitement of the peristaltic action even after recovery from the first access of peritonitis has ensued. A young man, in an enteric fever, was suddenly seized with the most violent symptoms of peritonitis. The pulse became small, rapid, and wiry—the abdomen swollen and exquisitely tender. No doubt was entertained as to the occurrence of a perforation, and the opium treatment was at once resorted to and continued for twenty-four hours. Next day the symptoms were greatly lessened in intensity, and we continued the remedy at longer intervals for a few days. All symptoms of peritonitis disappeared, the abdomen felt natural, and the pulse had returned almost to its normal standard. The patient's condition improved daily, he took nourishment freely, when, the bowels having been confined for many days, a very mild saline laxative was unfortunately given. It acted gently, when the former symptoms at once returned, and the patient sank in the course of some hours. On dissection, well-formed but recent adhesions were found in different portions of the peritoneum—evidently the result of the first, all-but-cured attack. The perforation was in the ascending colon. It was patulous, while bilious and feculent fluid existed in the serous cavity.

Now, that this patient would have been saved, had the laxative been withheld, there can be little doubt, and the case is full of instruction and warning.

There are few more interesting and important facts in therapeutics than the tolerance of opium in repeated doses in this form of peritonitis, and the remedy has been found applicable in other cases besides those of intestinal perforation. It has succeeded in a rupture from an over-distended bladder, in which immediately after the accident no urine could be found by the catheter. In a case in which an hepatic abscess had opened into the peritoneum, the inflammatory symptoms entirely subsided after a few days of the opium treatment. On dissection, after death from another abscess, numerous organized adhesions were observed between the convolutions of the intestine and the parietal peritoneum.

In connection with this subject of the treatment of perforative peritonitis, it may be well to remind you that this complication of fever, like the other secondary affections, varies in frequency according to the prevailing epidemic characters of the disease. Thus previously to 1827 Dr. Graves observed but one instance of the lesion out of more than 1000 cases of fever, while during the session of 1828–29 the occurrence was frequent in Dublin. At the present day, again, even though enteric fever has increased in prevalence, this terrible accident is comparatively rare.

Dr. Graves and I[1] have shown that the antiphlogistic method of treatment is not so applicable in these cases as in examples of idiopathic peritonitis. In the first place, the perforation occurs at an advanced period of some other disease, when the constitution is enfeebled, and, at the time you will be called on to interfere, the patient is suffering not merely from general peritonits but from the collapse which attends the accident. The disease runs its course with such rapidity that in a comparatively short time the patient is brought into the last stage. Under these circumstances the antiphlogistic plan only accelerates the fatal termination. No doubt in ordinary peritonitis bleeding may check the increase or extension of the disease; but in these cases the affection is immediately extensive and severe, and the indications are not to withdraw blood from the already enfeebled frame, but rather to relieve pain, control the peristaltic action of the bowel, and to support the strength until nature shall have completed the organization of the false membrane.

In the epidemic of 1827 the antiphlogistic method in these cases signally failed in our wards, while the exhibition of opium and wine, or of opium in full doses, was attended by satisfactory results. More recent experience testifies largely to the truth of these observations.

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[1] "Clinical Report of the Meath Hospital," Dublin Hospital Reports, vol. v.

Dr. Samuel Cusack, in speaking of puerperal fever, long ago bore witness to the efficacy of wine and opium in puerperal peritonitis, where the powers of life were greatly sunken, and any form of blood-letting or of depletion was inadmissible. His observations were fully confirmed by Dr. Gooch.

I would commend to your most attentive consideration the following admirable remarks by Dr. Murchison on the treatment of peritonitis in fever. He says:—[1]

> "Although the cause of peritonitis cannot always be determined with certainty, in the great majority of instances it is perforation of the bowel. The case, though desperate, is not altogether hopeless. Opium is the only remedy to be relied on in such cases; but, to be of service, it must be given immediately and boldly. To an adult, two grains of solid opium may be given at once, followed by one grain every second or third hour, till slight stupor is induced. When the stomach is irritable, the subcutaneous injection of morphia is preferable to opium by the mouth. The doses will vary with the age and other conditions of the patient, but the amount of opium tolerated is often extraordinary; as much as sixty grains have been taken in three days with benefit. The opium is to be given alone, and not in combination with calomel, which brings down more bile into the lower bowel, and so excites peristaltic action. The object is not to produce absorption of lymph (even if the mercury had power to do this), but to paralyze the movements of the bowels, so as to prevent the escape of their contents into the peritoneum, and favour the formation of adhesions.
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> "Many writers have recommended the application of leeches to the abdomen on the supervention of peritonitis, but the extreme prostration, and the circumstance that the tendency is to death by asthenia, contraindicate such a practice. The pain and tension of the abdomen will also be relieved by warm fomentations, bran poultices, and turpentine stupes; but a much more certain method of subduing the inflammation is covering the abdomen with a bladder of ice, or with the ice poultice referred to under the treatment of tympanites. At the same time the patient must be kept in a state of absolute rest, and on no account raised in bed, and the ingesta ought to be liquid, and given in such small quantities at a time that they can be absorbed by the stomach. A tablespoonful of milk or of iced brandy and water may be given every hour, or every half-hour. The large quantities of food and stimulants sometimes given cannot fail, in my opinion, to be injurious."

He adds:—

> "If the case does well, we must beware of interfering with the constipation induced by the opium: cases are recorded where the incautious administration of a purge appeared to break up the adhesions and produce a fresh and fatal attack of peritonitis."

HEMORRHAGE from the intestine in fever is not of very uncommon occurrence. It may sometimes be regarded as to some extent a *criti-*

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[1] Loc. cit., page 655.

cal phenomenon, and it often produces a beneficial and curative effect, lessening the local determination and irritation. Under these conditions it should not be interfered with.

But cases are met with in which, from the amount, continuance, or recurrence of the bleeding, the patient's life is placed in jeopardy, and then we are called on to check the flow if possible.

The manner of the hemorrhage is twofold. Sometimes it consists in a *weeping* from the mucous membrane. More rarely a vessel of some size is opened by ulceration—this especially happens in the second or third week of enteric fever. Fortunately, the treatment likely to be of use is nearly the same in both cases. Rest is of paramount importance. Cold drinks and ice may be given. Turpentine, in small doses, is particularly useful where the hemorrhage is associated with much tympany. Acetate of lead and opium sometimes act well; or opium may be given in full doses if there are strong grounds for supposing that the source of the bleeding is an eroded artery. The points in favour of such a view will be the suddenness of the occurrence of the bleeding, its large amount, the advanced period of the illness, and the absence of hemorrhages in other parts of the body.

A man, of middle age, was almost convalescent from a comparatively mild enteric fever, when in the middle of the night he was seized with sudden diarrhœa. The resident clinical clerk was hastily summoned. He soon found that the motions consisted principally of blood, at first dark and tar-like, then of a more florid and arterial appearance. The quantity passing from the patient was so large that no time was to be lost. The clinical clerk accordingly at once administered a full opiate; in an hour he gave a grain of opium with acetate of lead, and he repeated this dose every two hours until the patient had taken 7 or 8 grains of crude opium. The hemorrhage was soon checked, and the curious thing is that the patient showed the same remarkable tolerance of the opium which we have already spoken of in connection with peritonitis. He made a good and rapid recovery. Of course the utmost caution should be employed in these cases, and the effect of every dose should be attentively watched.

Among other remedies in this complication may be mentioned tannin, tincture of the perchloride of iron, and ergot. The last is highly commended by such authorities as Dr. Murchison, and Dr. J. B. Russell, of Glasgow. The former has used it subcutaneously with excellent effect.

LECTURE XXXII.

TREATMENT OF THE NERVOUS SECONDARY SYMPTOMS OF FEVER—HEADACHE—Cold lotions, warm fomentations, moderate leeching, shaving the head, cold affusion, ice—DELIRIUM—Treatment depends on (1) period of case, (2) presence of hyperæmia of the brain, or otherwise—Ice, leeches, shaving the head, cold affusion in *active* delirium—Nourishment and wine in *passive* or anæmic delirium—SLEEPLESSNESS—Moderate leeching, cold affusion, ice—Turpentine in constipation and tympany—Catheterism in distended bladder—Sedatives—Opium, tartar emetic and opium, hyoscyamus, bromide of potassium, chloral, wine—CONVULSIONS—Most formidable in fever—Uræmic, due to (1) *retention* of urine: catheterism; (2) *suppression* of urine: dry-cupping and poulticing over kidneys, diluents, diuretics, aperient enemata, promotion of action of the skin.

AMONG the earliest, most frequent, and often most prominent of the nervous symptoms in fever is HEADACHE. At first it is seldom very violent, and no important or vigorous measures are required for its relief at this period. It is generally a symptom which subsides early in the case, and is rarely indicative of anything beyond functional derangement, or incipient or progressive affection of the brain. The intensity of the symptom is more marked in typhus than in typhoid; but in neither form of fever is it often accompanied by indications of active determination to the head, and in both it commonly subsides without any interference beyond the application of a cold lotion, such as vinegar and water, or chloride of ammonium (sal ammoniac) and water.

But should it be severe, and attended with more or less heat of the head, you may employ with advantage warm stuping of the forehead and temples. These warm fomentations may be repeated according to circumstances, and you have often seen the marked relief afforded by them. Should this measure fail, the application of two or three small leeches to the temples or behind the ears will be followed by relief—a relief out of proportion to the quantity of blood taken. You will, however, remember that the pain generally subsides by itself after the lapse of a few days. Yet it sometimes continues, and resists even the treatment I have suggested; and then, when it is severe and attended with heat and fulness of the head, you may adopt more active measures. You may apply a larger number of leeches in relays for two or three times. It used to be the practice in this city, when the pain was obstinate, with heat of the head, sleeplessness, and commencing delirium, to open the temporal artery—a proceeding often followed by excellent results. It should be remembered that I speak of a time at the commencement of the change of type in disease; yet the general adoption of this measure is not to be advised, as the wearing of a tight ligature round the head is often distressing, to say nothing of the accidental re-opening of the wound or the formation of a small traumatic aneurism. I should tell you that the quantity of blood removed in this procedure was never excessive, varying from six to ten or twelve ounces.

Now, I believe that by shaving the head, the cold affusion, and, if necessary, the application of ice, you will do all that arteriotomy could effect.

Yet *shaving the head* should not be a matter of routine, especially among hospital patients. You must not forget that the poor convalescent cannot afford to purchase a wig, and that in consequence he may become liable to otitis and other accidents, such as rheumatism or neuralgia of the head. And this reminds me that in the epidemic of 1826 and 1828 one of the physicians of our large temporary hospital adopted the routine practice of shaving the head of almost all his patients. Dr. Graves and I, on the other hand, had very rarely occasion to direct the operation, so that when the shorn and the unshorn patients met in the convalescent wards the former became greatly dissatisfied. But this was not all, for soon those whose heads had escaped the routine razor turned on the shaved ones such a battery of Irish satire on their appearance that on one occasion it proved too much for endurance, and a general engagement took place in the convalescent ward, which was quelled with the greatest difficulty.

Cold affusion is best carried out in the following manner: The patient's head is held over a basin, while cold water is allowed to pour slowly from a jug holding a quart or two, and held at no great height above the head. It is necessary to let the stream fall on different parts of the head from time to time, for otherwise a very painful sensation may be produced. The almost instantaneous relief afforded in this way is often remarkable.

Now as to the *application of ice:* This is frequently most clumsily and ineffectually performed. A bladder containing fragments of ice is placed on the vertex and allowed to remain there. The effect of the cold thus locally employed on the shaved head gives such distress as to be at times intolerable until the ice is all melted, when you may frequently find your patient's head covered for hours with a bag of water at *fever heat.* Of course you will not permit such an error to happen—the frequency of which showed how much we were in want of skilled nurse-tending. The proper method of proceeding is to place a piece of ice, rubbed smooth with the hand, in a cup-sponge of convenient size, and by inverting the sponge to bring the ice into contact with the shaved scalp, keeping it in gentle motion round the head. The sponge absorbs the water, and when it is saturated it can be squeezed out, the ice replaced, and the application recommenced. In this way no pain is caused, and the proceeding is grateful to the patient, while the entire head is cooled. Of course, in many cases the application must be renewed at shorter or longer intervals.

Before passing from the treatment of headache I wish to mention the influence for good on the general condition of the patient often observed on cooling of the head by some of the means I have described. At times, in advanced fever with continued determination to the head, you may see a rapid improvement (which continues to recovery) of the patient when the heat and fulness of the head have been allayed by appropriate measures. It seems as if the influence of periodicity, which had been interrupted by the local malady, was again permitted to act. There can be no doubt of the existence in fever of a condition more or less persistent, in which various influences may bring about a cessation or subsidence of the morbid phenomena. Thus we read of cases of camp fever subsiding on any forced removal of the patients. You will find marked benefit to follow the removal of a patient in protracted fever to another ward; and even crisis has been observed closely following a simpler proceeding, such as a change into a fresh bed, the washing and shaving of the patient's face, sponging the surface, and so on.

In considering DELIRIUM in fever, strive to keep the great pathological principle before you of the rarity of actual cerebritis in essential disease. Also that when it does occur it is in most cases specific and reactive, and as such, not to be treated as a simple primary inflammation. You will do well to study Dr. Collins' history of the epidemic of cerebro-spinal fever in Dublin—the so-called "cerebro-spinal arachnitis"—and you will perceive, I do not doubt, that the condition of the brain and spinal cord was strictly analogous to that of the ordinary secondary diseases in typhus and typhoid fevers; that it bore the same relation to the essential malady; and that in all things—treatment included—there was an analogy between the local and predominant affections of these forms of disease. They differed only as to symptoms referable to the organs which bore the weight of the secondary malady, and agreed in inconstancy of occurrence, variety in degree, and incompetency of the local phenomena to account for the general symptoms.

A key to the treatment of delirium is to be obtained by having regard mainly to two considerations. First, the period of the case at which this symptom is developed. The earlier the period, the greater the chance of relief by remedial measures, such as the cold affusion and leeching. Secondly, the presence, the degree, or the absence of signs of active hyperæmia of the brain.

Now, the symptom may be actively developed at an early period, making it probable that it is still of toxic and functional origin; or it may occur at a more advanced stage, when—if signs of active determination to the head be present—it may be supposed that reactive irritation is already set up. It is in this latter condition that Dr. Hudson advocates the practice of arteriotomy, but this measure is seldom necessary if leeches are judiciously used, and the cold affusion or the application of ice to the head properly carried out.

Ice is especially useful under such circumstances. I remember attending a professional man, who with a very large head was of a highly nervous and choleric temperament. He had a well-marked typhus fever with severe cerebral symptoms, such as frequently-violent delirium, long-continued want of sleep, and extreme heat of the head. Leeches had been freely applied, and followed by shaving the scalp and cold affusion. I recommended the application of ice in the way I have detailed to you. There had been no sleep for several days and nights. A proper supply of ice having been obtained, his wife commenced to move the sponge with ice slowly and steadily round and round and over the great head. The patient at once became quiet, and soon fell into tranquil sleep. So long as the application was continued he remained asleep, but awoke suddenly and delirious whenever from fatigue his wife rested her arm. In this way he used to get continuous sleep for half an hour or an hour. For three days and three nights she hardly ever intermitted her labour of love, and might be seen kneeling at the bedside while a cloud of vapour was rising from the head. Her unwearied efforts were rewarded, and her husband recovered.

The devotion of woman is truly wonderful. In another case—one of putrid typhus fever—the disease, from the condition of the skin and the discharges, was of a most loathsome nature, and the patient, also a medical man, in his wild delirium could not be kept in bed unless his wife undressed and lay down beside him. This, I ascertained, she continued to do during the long course of the disease, for in this way alone could any sleep be obtained. At our daily visit this lady received us in a fresh and elegant morning costume. She too had her well-earned reward, and we cannot doubt that her noble indifference to personal risk went far to protect her in the dreadful exposure to contagion. A lesson taught us is that contagion is one thing, the state of receptivity of the body another.

Gentlemen, you will learn many things in your future practice besides medicine, and will be taught what a woman will do when the object of her love lies prostrate in disease, in shame, in sorrow, or in madness. This is indeed the bravery of devotion. In one of the Ballads of the Cid, he is represented as rescuing from death by drowning a leper whom none of his train would approach. He mounts him on his horse, brings him to a place of refuge, and even shares his bed with him at night. He is awakened by a sensation as if a sword passed through him, to find his companion gone. Soon afterwards the room is suddenly filled with light, and the holy Lazarus stands effulgent by his side, bringing a message from the Throne of God, that all honour will be given to him in this world, death in victory, and life eternal in the world to come.

The form of delirium I have just been speaking of is that accompanied by high arterial tension and other active symptoms. If, on the other hand, such signs are wanting, you must be very cautious in bleeding locally, or even in the application of cold. An opposite line of treatment is in this case generally indicated. If we have delirium, even violent, without heat, fulness, or increased arterial action, the treatment by leeching and cold may be in the highest degree dangerous. This we have often witnessed in pure delirium tremens, and in the frequent affection in Dublin called "the whiskey-fever," when these are combated by depletion of the head.

It is now many years since I was called to see a Polish officer in an advanced stage of typhus fever. He had been very delirious, and at my visit I found him with his shaven head covered by a bladder of ice, while in each axilla a large mass of ice was fixed, and his hands were clasped as in prayer. He was perfectly pale, and with great feebleness of pulse; but he recognized me, and turning towards me he mournfully said, "I think I am one of the lost ones." I need not say the ice was all removed, warm and dry clothing supplied, while wine and nourishment were given. The result of the change of treatment was in every way satisfactory.

In administering stimulants in delirium you must in every case begin tentatively, watching their effect from hour to hour. The chief indications for their employment are the nature and the advanced period of the fever, the absence of signs of *active* determination to the head, the want of vigour in the heart as to its impulse and the intensity of its sounds, and, lastly, the age and previous history of your patient.

With regard to this last point, you will remember what I have said in a former lecture as to the sanative influence of stimulants so often observed in patients of previously temperate habits.

The question of the exhibition of sedatives in delirium may fitly be considered in connection with the treatment of INSOMNIA, or SLEEPLESSNESS, to which I would now bespeak your attention. The symptom is frequently one of the most serious, troublesome, and unmanageable of the evidences of nervous derangement in fever. It is sometimes combated successfully by such measures as have been already considered—namely, moderate leeching, the cold affusion, and the application of ice. In cases where the bowels are confined with more or less tympany, Dr. Hudson states that the best effects were produced by the administration of a full dose of turpentine. I have myself observed a like result follow the relief of some local distress in a distant part of the body. A man in advanced fever, who had been sleepless and very delirious, was found to labour under a distended bladder. The catheter was at once passed, and an immense quantity of urine drawn off. Very shortly the delirium ceased and the patient fell asleep.

It remains for us to speak of sedatives in fever.

In seeking for a guide as to the exhibition of opium you will find assistance in observing the state of the eye, for the contracted or "pinhole" pupil seems to be more closely related to active hyperæmia of the brain than the natural or dilated one. Still, the condition of the pupil is not an absolutely certain guide, and cases are recorded in which an opiate acted well notwithstanding its contraction. This sign also may be present in one eye and absent in the other. Speaking generally, it is far safer in fever to give opium in small and repeated doses than to venture upon a large single dose. It may be advantageously combined with antimony, as advocated by Dr. Graves, not so much as an antiphlogistic or eliminative agent, but as a direct means of increasing the hypnotic influence of opium. This appears to be one of those therapeutic results, the explanation of which, like that of many others relating to the action of medicine, is so far involved in obscurity. Dr. Graves used to prescribe a mixture containing four grains of tartar emetic and a drachm of tincture of opium in eight ounces of camphor water. A tablespoonful of this was given every second hour until the desired effect was produced. The efficacy of the remedy in his hands was most remarkable; and in the number of the *Dublin Quarterly Journal* for August, 1849, Dr. Robert Law bears his testimony to the value of this treatment.[1]

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[1] Second Series, vol. viii. p. 63.

Tartar emetic and opium are in general indicated in those cases of even high delirium, with sleeplessness, where the head is cool and the action of the heart is not vigorous.

Other sedatives which you will find of use in fever are the tincture of hyoscyamus, bromide of potassium, and chloral. With respect to the last-named remedy, I would caution you against giving too large a dose at once. In fever ten or fifteen grains of the hydrate of chloral are generally sufficient to produce the wished-for effect, and if this dose fails it can be repeated after a lapse of one or two hours. The remedy is of especial value in the management of many cases of simple delirium tremens. In this disease it may be employed in moderate and repeated doses if necessary.

You will occasionally find that wine has a well-marked calming and sedative effect in fever. A patient who has been restless, sleepless, and delirious will sometimes become quiet and fall asleep after the administration of a little wine. This occurs where the nervous symptoms are probably due to an anæmic or spanæmic condition of the brain associated with a weak heart and a flagging circulation.

Convulsions in fever are among the most formidable complications of the disease, more particularly so when they occur in its advanced stages. Under the term "convulsions" may be included a group of phenomena varying from slight *subsultus tendinum* and *floccitatio*, or picking at the bed-clothes, to the most violent and general perturbation of the muscular system. These symptoms in a more advanced stage of the fever are often attributed to uræmic poisoning, and there can be no doubt that there is frequently disturbance referable to the urinary organs. You will see in Dr. Hudson's work[1] a quotation from Sir Dominic Corrigan in reference to the importance of attention to the relieving of the bladder. Sir Dominic shows that daily attention to the state of the bladder is imperatively necessary, and that the catheter should be employed in retention of urine with or without dribbling. In truth, you must not trust to any report from the nurse as to the existence or absence of retention, for often, although a large quantity of water may have been passed, the bladder will be found greatly distended. This state may have been preceded by suppression, and it sometimes happens that the return of the secretion is attended by an enormous flow, especially when this occurs at a critical time of the fever. In such a case it will be right for you to re-visit the patient within an hour or two after catheterism, when you may be surprised to find the bladder again over-distended.

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[1] Lectures on the Study of Fever, second edition, p. 183.

The amount of distension is sometimes extraordinary. "I saw not long since, in private practice," says Sir Dominick Corrigan, in speaking of the necessity of attending to the bladder in fever, "another case illustrating the same point. In this case the patient was a lady under the care of a homœopath. You know a homœopath would not use a catheter. It was on the fifteenth or sixteenth day of fever. I found her in epileptic convulsions, which had continued for some hours, foaming at the mouth, insensible, unable to swallow, and, to all appearance, dying. On examining the abdomen, I felt the bladder extending up as high as the umbilicus. On introducing the catheter, it was scarcely possible to bear the intolerable ammoniacal smell of the urine, which must have been shut up for several days. It continued to flow until some large basinfuls were drawn off. This patient recovered, but she suffered much from the neglect. Subacute and then chronic cystitis followed, under which she continued to suffer for more than a year afterwards."

In connection with the presence of uræmia in fever we have observed the urine in such cases to effervesce briskly on adding a dilute acid, and I have already mentioned a case of extreme subsultus in which the cerebral sinuses and the veins of the pia mater contained air in considerable quantity.

The most long-continued and violent attack of convulsions I ever witnessed was in the case of a student of this hospital, who had gone on to the thirteenth day of fever. The distended bladder could be felt; but such was the violence of the convulsions, attended with extraordinary priapism, that all attempts at catheterism were futile. It was also impossible to get the patient to swallow anything, or to use an enema, and under these desperate circumstances we determined to employ chloroform inhalation. The greatest difficulties attended the administration, but at last the effect was produced. The convulsions ceased like magic, and suddenly a jet of urine sprang upwards to a great height from the still erect penis; the stream continuing to flow until the bladder was empty, when the priapism disappeared.

We see, therefore, that, where the uræmic condition and its accompanying convulsions depend on mere *retention* of urine, we have a ready and efficacious remedy in careful and judicious evacuation of the bladder by the catheter.

But in *suppression* of urine our treatment must be different. Dry-cupping freely employed over the kidneys, the diligent application of poultices and sinapisms in the same region, the use of diluents, and the exhibition of a combination of nitre with the spirit of nitrous ether, are the measures in which you are to place most confidence.

It is also necessary to keep the bowels open by turpentine enemata, and the action of the skin may be stimulated by sponging with tepid vinegar and water and subsequent rubbing with a dry towel.

LECTURE XXXIII.

PHLEGMASIA ALBA DOLENS—The swelling is not always painful, or white in appearance—Symmetry of the affected limb not lost—Professor Trousseau's views as to the etiology of the affection—Phlegmasia (1) of puerperal women, (2) in scrofulous and (3) cancerous cachexiæ—Pulmonary *embolism* caused by phlegmasia—Case of phlegmasia after typhus fever—TREATMENT of the affection—GENERAL CONCLUSION.

GENTLEMEN, you may remember my mentioning to you that a continued rapidity of pulse after the other constitutional symptoms of fever had subsided was to be taken, not—as suggested by Laennec—as a sign that the heart had been weakened, but rather as showing the existence of some acute organic change attended with irritation. I mentioned as examples of these changes two pathological conditions—one, the acute and sometimes general development of tubercle; and the other, that form of disease to which the name of PHLEGMASIA DOLENS, or PHLEGMASIA ALBA DOLENS, has been given.

We shall by-and-by examine how far the term "phlegmasia" is properly applied; and, although the disease is commonly more or less painful, it may occur so free from local suffering that its discovery is accidental; and so, as I have already shown, the adjective "dolens" is not always applicable. Again, in place of the swelling being colourless, the entire limb may be covered with deep purplish-blue arborescent stainings, so that the remaining portion of the term is not always appropriate. This, however, is less often met with than the absence of pain. The pain, too, may be singularly localized; thus, in a case which was under the care of an eminent physician, the pain was confined to the sciatic notch. The disease was held to be merely sciatica, and the actual cautery ordered to be applied over the nerve. In preparing to effect this the assistant accidentally exposed the opposite extremity, when he was struck by its comparative emaciation, and the real nature of the case was at once revealed.

This illustrates an interesting circumstance, which we have often observed—namely, that, though the swelling of the limb may be general, it has little if any effect on the symmetry of the part. The limb is simply larger and fuller than the opposite extremity, so that it is often only by comparison that the morbid enlargement is recognized. I detailed to you a case in which symptoms of intermittent fever, which, however, was then epidemic, were present and exasperated by the use of quinine. Here the discovery of the nature of the disease was due solely to an accidental comparison of the lower extremities. The patient was not conscious of the existence of any enlargement or pain in the limb.

It is probable that this remarkable appearance of symmetry of the affected limb occurs more frequently when the disease is a sequela of fever than in other cases. Thus Professor Trousseau,[1] in speaking of its occurrence in tubercular and cancerous cachexiæ, refers to the irregular form assumed by the painful œdema in these affections.

In his lectures the same great clinical teacher dwells on phlegmasia alba dolens as a result of puerperal fever, and also mentions its occurrence in typhus and in typhoid fevers.

He inclines to the opinion that it results rather from a condition of the blood predisposing to coagulation in the veins, and their consequent obstruction, than to primary phlebitis. The result is what he denominates "painful œdema," which disappears either by the establishment of a collateral circulation or by the resolution of the clot. He gives some important facts showing that the existence of a phlegmasia abla dolens may have an important influence in the diagnosis of visceral cancer.

You may now ask how far the term "phlegmasia" is applicable to this disease, or whether the coagulation of blood in the veins is not the first step of the local malady, while the inflammatory condition is secondary and reactive. Certain it is that when a cordy and painful state of the veins, such as the femoral or saphena, exists, the moderate use of leeches over the vessel is advisable. This is true at least in the case where the disease occurs as a sequela of fever, and it is on this that our observations are based.

Now, whether phlegmasia occurring in puerperal woman is or is not due to the presence of uterine phlebitis and the extension of inflammatory action along the veins, producing obstruction of them, may be a question; but that actual primary or traumatic phlebitis is capable of obstructing a vein so as to cause painful œdema—in other words, phlegmasia dolens—appears from a case which occurred some years ago in our wards. It was of a patient labouring under an acute attack of visceral inflammation who was bled from the arm. The operator used a rusty and blunt lancet. The arm became painful and tender along the course of the median basilic vein above and below the bend of the elbow. There was no swelling, but the type of fever changed to an asthenic form, attended by sweating and anxiety, so that the state of pyæmia was apprehended. This having continued for a few days, the arm suddenly swelled from above the elbow downwards, and presented all the characters of phlegmasia alba dolens. The constitutional symptoms subsided, and the patient gradually recovered.

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[1] Clinical Medicine, vol. v. lect. xcv. New Syd. Soc. Translation.

Now, you know that ordinary phlegmasia dolens is seldom a fatal disease, a fact which may be accounted for by assuming that, as in the cachexiæ, the coagulation of the blood is the principal morbid condition, or that it acts in preventing the blood-poisoning by the localization of phlebitis. Be this as it may, it seems certain that the danger is inversely as the amount of swelling. I believe that in the case I have just now detailed suppurative inflammation of the vein was about to commence when coagulation put an end to further absorption.

In connection with this point I may notice that in certain forms of visceral irritation the bulk of the affected organ is greatly augmented. And it may be that this is caused by œdema, the result of venous obstruction. Thus in a case of croupous or plastic pneumonia which was brought before the Pathological Society of Dublin by Professor Robert William Smith the enlargement of the affected lung was so considerable as to simulate empyema; the side was much dilated and the liver depressed. Every air-cell seemed to be filled with minute granular fibrinous bodies, of which thousands were obtainable by washing the cut surface of the lung.

Trousseau has shown that the principal condition in the phlegmasia dolens is coagulation of blood in some venous trunk, and not, as has been held, an affection of the lymphatics. In this hospital we have verified his statement of freedom of the lymphatics and glands in the groin. You will do well to study his 95th lecture, in which, in addition to an exhaustive pathological account of the disease, he shows that, in the cachexiæ generally, hæmatologists[1] have established that there is a diminution of the red globules and an augmentation of the fibrin and serum of the blood. This condition predisposes to a spontaneous coagulation, the tendency to which we may well suppose to be still further increased by the presence of any phlebitic irritation.

I have told you that Trousseau explains the frequency of phlegmasia in the cancerous and tubercular cachexiæ by a reference to this fibrinous and leucæmatous condition of the blood, and it is more than probable that its occurrence as a sequela of fever depends on the same cause. In further support of this view I may recall the fact, also noticed by Trousseau, that phlegmasia is more common after enteric than after typhus fever, the longer duration of the former tending to modify the constitution of the blood to a greater degree. There can be little doubt also that the local abdominal irritation so common in the advanced stages of enteric fever, like the uterine irritation in cases of *phlegmasia puerperarum*, acts as an exciting cause in the presence of such a deteriorated condition of blood.

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[1] Andral et Gaverret, Récherches sur les Modifications des Proportions des quelques Principes du Sang dans les Maladies. Paris, 1842.

Viewing the question again from another point, it may be held that the affection following fever is the result rather of a state of blood predisposing to coagulation than of an original phlebitis. It has been observed that there is often little, if any, increase of local temperature, and the disease appears to differ from the secondary affections of fever in not presenting any well-marked signs of periodic retrocession. Still, as I have said, in cases where at an early period a cordy state of the femoral or saphena veins—accompanied by tenderness—exists, the application of a few leeches along the course of the vessels, fomentations, poultices, and the moderate use of opium are followed by good effects.

Professor Trousseau also alludes to the occurrence of pulmonary *embolism* in phlegmasia dolens in the male subject, showing that spontaneous coagulation may be developed in the saphena, crural, or any other vein, and remain limited to a very small extent of the vessel. He observes that generally the migratory clot reaches the lung, causing dyspnœa and rapid death by apnœa; but he believes that in certain exceptional cases the clot may be arrested in the right auricle or ventricle of the heart. He says that, in accordance with the predisposition of the patient and the volume of the clot, the phenomena which belong to syncope will be observed; the heart, surprised, so to speak, by the arrival of the migratory clot, will at once cease to beat with regularity and power, and ere long contractions will entirely cease. In these cases death will take place by syncope—by "arrest" of the heart—in fact, the prolonged syncope leads to death.

I have sometimes thought that this form of syncope was induced less by the "surprise" of the heart than by the sudden cutting off of the blood supply from the left ventricle. A case was some years ago presented to the Pathological Society of Dublin in which symptoms of heart disease were at last followed by a sudden and fatal syncope.

An indurated coagulum of a spherical form had entered the funnel-shaped sinus described by Mr. Adams, and completely occluded the left auriculo-ventricular opening, thus absolutely and suddenly cutting off the blood supply from the left ventricle.

Before I conclude this lecture I will read the notes of a very interesting case of the affection which has been engaging our attention. The subject of it was a pupil of Dr. Graves and myself at this hospital, who for many years since has enjoyed an extensive practice in the country. The facts of the case are given in the gentleman's own words. He says:—

For a great part of the years 1827, 1828, and 1829, I acted as clinical clerk to you and our lamented friend Dr. Graves in the Meath Hospital, during the protracted continuance of an epidemic of typhus fever, which we cannot easily forget. My principal business was to ascertain, as far as possible, the critical days of the fever, in the investigation of which you and Dr. Graves were deeply interested at the time. In this occupation it was my duty to spend several hours every day at the bedside of patients in all stages of the fever, and my immunity from contagion for so long a period led me to imagine that I had become absolutely *fever-proof;* but I was destined to be undeceived.

One morning in June, 1829, Dr. Graves called the attention of the class to a remarkable instance of *calor mordax* in a female patient. Of course there was a rush of the pupils to witness this unusual phenomenon, myself amongst the foremost. I had no sooner laid my hand on the burning skin of the patient's arm than I was conscious, by a sudden thrill or shock through my whole frame, that I was stricken by fever. That day and the next constituted the period of incubation. I was not actually ill, but I was languid, uncomfortable, listless—out of sorts in every way. On the third day I had a rigor, followed by an intense pain in the head, with nearly all the usual characteristics of typhus, including a full crop of petechiæ. (It is worthy of notice, however, that neither in this nor in several subsequent fevers had I ever the slightest delirium.) On the twenty-first day from the rigor I appeared to have a crisis, and a terrible crisis it was. I was suddenly seized with violent pain, apparently in the left hip-joint, and gradually extending to the leg and foot. The whole limb became swollen and glazed, presenting all the appearance of a leg affected with *phlegmasia dolens*, as no doubt it was. The pain was excessive and almost intolerable. For fourteen nights the most powerful opiates which could be safely administered failed to procure sleep, though they served, in some degree, to alleviate pain.

After about three weeks of acute suffering—six weeks from the commencement of the fever—I was enabled to leave my bed. But the swelling of the limb remained, and it was evident that there was permanent hypertrophy of the cellular substance. In all likelihood I was doomed to have a thick leg for life. For many years, too, I continued to have more or less pain in the hip, always increased by exercise. Some short time after my recovery from the fever the veins of the affected leg became varicose, and I had a varicose ulcer which remained open for nearly two years. This, however, was healed under the influence of country air and consequently improved health, and it has never returned. Once—about twenty years ago—a vein burst, and I lost a considerable quantity of blood. Since then I have persistently worn a bandage, and the veins have given me little further trouble. No special remedies were adopted for the reduction of the swelling of the leg; but on one occasion Dr. Graves hesitatingly suggested a line of treatment to which, as it involved an undesirable contingency, I demurred.

I now come to a curious and interesting phase of the history of this thick leg. You recollect that the swelling of the leg appeared to be a sequela of *one* typhus fever. Exactly *thirty-one years* afterwards—that is to say, in June, 1860—I had *another* typhus fever, when you and Dr. Hudson kindly came to the country to visit me. (*How* I came to pick up this well-marked maculated typhus I never could divine. There was no epidemic fever of any description in the neighbourhood, nor had I seen a case of typhus for seven years.) Well, the result of *this* fever was to restore my thick leg to its original dimensions. There was no marked crisis. After two or three weeks of extreme danger, in which my life hung by a thread, the fever gradually subsided, and disappeared by the twenty-seventh or twenty-eighth day, leaving the affected leg as slim and emaciated as its fellow; and the hypertrophy has never since reappeared.

But this is not all. In the spring of the present year (1873) I had a severe attack of influenza, from the effects of which I have not even yet recovered. After two or three months of delicate health, during which my professional engagements prevented my having change of air, a blush of redness appeared over the middle third of the tibia of the varicose leg, accompanied by tingling pain, tenderness to the touch, and slight œdema of the leg. The redness gradually increased from day to day in extent and intensity, and from its upper margin a well-defined dark red line extended to the knee, where it abruptly terminated. Under the use of bark and iodide of potassium the redness and tumefaction subsided, and I then detected a hard ridge, apparently bony, and about three-fourths of an inch in length, on the inside surface of the tibia. At first I attributed these symptoms to *periostitis*; but when the œdema had almost entirely disappeared, I discovered that the "ridge" which I had believed to be bony was *not* bone at all, but a portion of obliterated vein like a piece of hard whip-cord and movable under the finger. Was this an attempt at a natural cure? I sometimes fancy that the varicose veins have diminished in fulness and bulk, though it may be *only* fancy.

Before I conclude I may be permitted to refer to a couple of facts which bear upon the vexed question of *a change of type* in fever and other diseases.

1. I was never strong or robust, and at the commencement of my first typhus fever, at the age of twenty-three, my health had been impaired by arduous study and close attendance on patients in a hospital atmosphere. And yet the treatment—which I maintain was *at that time* the correct and proper treatment—would not be adopted at the present day. After an unsuccessful attempt by poor Dan Pakenham (the worthy apothecary of the Meath Hospital) to open my temporal artery, a dozen leeches were applied for the relief of the pain of my head; and during the whole progress of this petechial fever I obstinately and successfully refused to swallow wine or any other stimulant whatever. Again, after twenty-one days' reduction of strength by typhus, and when phlebitis set in, I had a hundred leeches, in two relays, applied to the painful hip—without much apparent benefit, I admit, but still without killing me or causing any perceptible injury. What would happen under similar circumstances *now?*

2. I was placed under much more favourable circumstances when, at the age of fifty-four, I was attacked by my second typhus fever. I had previously been in good health, and was residing in pure country air. Never-

theless it was only by the continuous and lavish administration of stimulants —alcoholic and diffusive—that my life was saved. I offer no comment; is comment needed?

In this very remarkable case there are two circumstances of peculiar interest. One of these is the undoubted occurrence of a second typhus fever in the same individual after a long lapse of time, the malady setting in, in the absence of any of its presumed exciting causes; the other, the fact that the tumefaction of the limb, which had been of many years' standing, completely subsided during the second fever. It is also worthy of note that last year my friend's health had not been so good, as a result of which a cachectic condition of blood was established, and determined venous coagulation in the leg. At least this would seem to be the probable explanation of the recent attack of irritation and coagulation in the vein of the leg.

The treatment of this affection is sufficiently simple, and I have given you an outline of it as regards local measures. In the advanced stages the exhibition of iron is often most useful, the preparation on which I would specially place reliance being the "ferrum tartaratum."

In conclusion I would caution you against a possible error of diagnosis. In phlegmasia, when the œdema in lessening loses a certain condition of tension, the local sensation of fluctuation singularly simulates that of an abscess, even one near the surface. This is often more or less localized, and the surgeon who neglects the history of the case and the attending phenomena may commit the error of taking a diffused œdema for a localized purulent collection. I have known an operation to be performed in two situations in the same extremity; fortunately no bad result followed. A similar condition more commonly observed is where parotid swellings form in connection with the eruptive fevers. I have seen deep incisions performed on the same occasion at both sides of the neck in cases where the sense of fluctuation solely was relied on. One patient died of oozing hemorrhage under these circumstances, the bleeding setting every treatment at defiance. A fact such as this will show you that the caution I give is not unnecessary.

Gentlemen,—We have now gone over the principal facts connected with the great subject of fever and its treatment, and have been much occupied with the local affections referable to one or more of the large cavities; but I trust that the junior members of the class will not imagine that, as a rule, they are to put all the recommendations given into force in any one case, or that I would encourage any meddlesome or complicated treatment in fever. There are cases in which you will have to change your hand several times in the course of the disease; but the worst kind of physician is the man who, from his own timidity or want of confidence in himself, is constantly changing his treatment and interfering with his case. You may still meet such practitioners—I regret to say it, too frequently—physicians, who have not learned to look at fever as a whole, who do not recognize the law of its spontaneous subsidence, or the great fact—especially as regards the nervous conditions—that the toxic state is to be looked to more than any supposed organic change.

I remember a case of bad cerebral typhus attended by a gentleman who every day made a new diagnosis, and who at last gravely assured me that he had come to the conclusion that there existed *acute inflammation of the hippocampus major!*

You must engrave on your minds that fever, although often showing secondary functional or organic anatomical change, may run its course without such complications. In these simple, or so to speak normal, cases you have to see only that the patient is placed in the best condition as regards ventilation, cleanliness, and fitting nourishment; that stimulants are given when indicated; and that the state of the bladder and bowels is attended to. Should symptoms of local suffering occur, you are to meet them—at least in the first instance—as signs of functional rather than of organic disease, and seek to relieve them at the least expense to the system. You will remember what has been so often impressed on you here and in the wards—always to consider the *epidemic character;* and that in fever danger arises from debility—often an early effect of the poison; or, on the other hand, from the varied and inconstant forms of the secondary functional and organic conditions.

To conclude, it would appear that the more fever and its effects are studied—whether at the bedside or in the dead body—the less importance will be attached to anatomical change. It is to the varying condition of innervation and of the chemico-vital states of the fluids that the great phenomena of Continued Fever are to be referred.

In relation to the weighty question of *prognosis*, you will ever remember that the course of a fever will be favourable in direct proportion to the absence of anomalous circumstances—even though individually these may indicate freedom from disease.

APPENDIX B.

The following observations have been furnished me by my colleague, Dr. A. W. Foot, as bearing upon the subject of the use of the thermometer in fever in our medical wards.

The thermometer has been in daily use in the medical wards of the Meath Hospital for many years. Its value as a reliable clinical aid in the diagnosis and prognosis of acute disease, especially in essential fever, has been established as fully as it has wherever else this instrument has been habitually employed.

During the past three years, 1871, 1872, 1873, 9248 observations on the temperature of the sick have been made in the medical wards. The observations are made twice daily, at or about 9 A. M., and 9 P. M., by the clinical assistants, the practising pupils in charge of the cases, or the physician on duty, and are recorded on the clinical charts of temperature published by Harvey and Reynolds of Leeds.

Of the 9248 observations 3696 were upon cases of typhoid and typhus fever; the remainder were upon cases of simple continued fever, scarlatina, measles, variola (1026 observations), lung diseases, erysipelas, cerebral fever, etc.

Of the 3696 observations on typhoid and typhus fever, 2649 were upon typhoid and 1047 on typhus fever. It has to be observed that there has been during the three years above mentioned—1871, 1872, 1873—much less demand than usual for the admission of "fever" patients—in part perhaps owing to the intercurrence of the smallpox epidemic.

The 2649 observations in typhoid fever were made upon 70 cases. The highest temperature registered among these was 107.2° Fahr., and the lowest temperature 94° Fahr.

On 27 occasions temperatures of 105° Fahr. or upwards were registered in typhoid fever in 15 patients, and of the 15 patients in whom the temperature on one or more occasions reached 105° Fahr. or upwards, five died. On four of these cases whose illnesses had been marked by high temperature *post-mortem* examinations were made.

(*a*) A girl aged 16, temperature on 30th morning 107.2° Fahr., died on the 31st evening. Her mean temperature (51 observations) during the 26 days she was in hospital was 103.1° Fahr.

The morning temperature, 107.2°, was coincident with severe rigors, preceded by violent pain in the abdomen, ushering in peritonitis, not due to perforation, but to propagation outwards of the irritation arising from numerous and extensive ulcerations of the intestinal glands.

(*b*) A female, aged 24, who died on the afternoon of the 36th day. Her average temperature was 102.1° Fahr., but did not exceed 105.2° Fahr. There were 17 patches of ulceration in the last 53 inches of the ileum, pleuropneumonia of the right side with exudation of plastic lymph and sero-fibrinous fluid in the right pleural cavity.

(*c*) A female, aged 20, who died on the 36th day, with most extensive ulceration of both solitary and agminated follicles of the ileum. Her mean temperature (45 observations) during the 28 days she was in hospital was 102.3°.

(*d*) A lad, aged 16, who died on the 15th evening of his illness after repeated intestinal hemorrhages. The mean temperature (14 observations) during the seven days he was in hospital was 103.5°.

(*e*) A young man, aged 18, who died on the 15th evening. On the 9th evening his temperature reached 105.8°. He was of intemperate habits, and had albumen in the urine. The mean of 16 observations on his temperature during the eight days he was in hospital was 104° Fahr. In this case a *post-mortem* examination was not obtained.

Cases have proved fatal in which the mean temperature was not very high, especially under two circumstances—great protraction of the fever, and the collapse consequent upon perforation. Of this latter kind two examples have been verified by *post-mortem* examination.

(*a*) A man, aged 40, brought into hospital in collapse on the 10th day of illness, and who lived until the morning of the 16th day. The mean of 12 observations during the six days he was in hospital was 99.5° Fahr. His temperature on admission was 97° Fahr.; the highest it reached in hospital was 100.8° Fahr.

(*b*) A man, aged 27, brought to hospital on the 8th day of illness, and who died on the 11th morning. His mean temperature during the four days, or part of four days, he was under observation was 100.2° Fahr.; the lowest point he reached was 97.7° Fahr.

In contrast with the two preceding cases is the case of a boy aged 18, who was brought to hospital in a state of collapse from perforation, and who only survived his admission 40 hours; the mean of three observations showed an average temperature of 103.7° Fahr.

In these three cases the intestinal perforation was discovered after death, and in each case fecal extravasation had taken place.

The extremely low temperature of 94° Fahr. was observed in a young woman, aged 24, upon the 24th morning of her illness. She was under observation during the whole course of her illness, as she got typhoid fever while under treatment in the medical wards for a different affection. She recovered, but had a long fever. Her chart was discontinued on the 46th day. She had during convalescence several abscesses over the sacro-iliac articulation, which were evacuated by aspiration.

Mistrusting the accuracy of the practising pupils' observation, I repeated it myself at 9½ A. M., and found the temperature of the axilla, with every precaution to secure accuracy, and with a correct instrument, to be 94°. The body felt cold and clammy like that of one taken out of water; cutis anserina was most strongly marked; she had no new abdominal symptom; the pulse was 88, regular, and easily felt at the wrist; the respiration 26. The collapse came on early in the morning; the temperature on the previous evening had been 101.6° Fahr., the pulse 101. She was quite conscious and sensible, felt cold, but had no pain anywhere; there was a tendency to vomit. She had not been taking any antipyretic medicine. The temperature began to rise from noon, and by 9 P. M. had risen 6.2° Fahr. higher than it had been in the morning. This sudden collapse was never accounted for. The highest temperature recorded among 70 observations made on her case was 105.5° on the 12th evening.

Among 1047 observations made upon 43 cases of typhus the highest temperature recorded was 106° Fahr. On twelve occasions temperatures of

105° Fahr. or upwards were observed in the cases of eight patients, four males and four females. Of these eight cases in which temperatures of 105° Fahr. or upwards were observed, two died: one—that above alluded to—in which the temperature reached 106° on the 16th evening, was a man, aged 34, affected with well-marked sclerosis of the posterior columns of the spinal cord (autopsy made); the other was a man of bad constitution, and 43 years of age, who succumbed on the 14th day.

Deaths from typhus of course occurred in cases whose temperature did not reach 105° Fahr., other lethal conditions being in operation. For example, a boy, aged 17, died on the 10th evening of typhus caught during a convalescence from scarlatina, which in its turn had followed closely in the footsteps of typhoid fever. He had been exposed to infection in a fever hospital. He was brought to the Meath Hospital desquamating, but covered with a copious typhus eruption; he had epistaxis, hæmaturia, green vomiting, and died in convulsions. His temperature did not exceed 104° Fahr., and was twice in the six days he was under observation as low as 98° Fahr.

The employment of the thermometer has proved of great value in the diagnosis and prognosis of a given case, in distinguishing a factitious from a genuine convalescence, in estimating the severity of a case, in estimating the results of antipyretic treatment, in detecting imposition, as an indicator of complications. The students are soon firmly convinced of the great value and importance of medical thermometry, and the patients have never expressed themselves as in the slightest degree annoyed or fatigued by even the frequent use of the instruments. Its employment is general in the medical wards, and by no means confined merely to cases of acute disease.

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